Table of Contents

SECTION 01015

ACRONYMS AND ABBREVIATIONS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Acronyms and abbreviations used throughout the Contract Documents.

1. Listing:

AB	Authorization Basis
AC	Asbestos Cement
ACGIH	American Conference of Governmental Industrial Hygienists
ACI	American Concrete Institute
ACL	Administrative Control Level
ACM	Asbestos Containing Material
A-E	Architect-Engineer
AHERA	Asbestos Hazard Emergency Response Act
AIA	American Institute of Architects
AIHA	American Industrial Hygiene Association
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AM	Access Monitor
ANSI	American National Standards Institute
APR	Air Purifying Respirator
ARA	Airborne Radioactivity Area
ARPA	Archeological Resources Protection Act
ASA	Auditable Safety Analysis
ASCE	American Society of Civil Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATS	Alpha Treatment System Facility
AWS	American Welding Society
AWWA	American Water Works Association
BCR	Buyer's Contracting Representative
BKG	Site Background activity
BIA	Brick Institute of America
Bldg 23	Mixed Waste Storage Facility
Bq	Bequerel
BTR	Buyer's Technical Representative
BWXTO	BWXT of Ohio, Inc.
BUSTR	Bureau of Underground Storage Tank Regulations

BUYER	BWXT of Ohio, Inc.
CA	Contamination Area
CAM	Continuous Air Monitor
CAR	Corrective Action Report
CE	Construction Engineer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFC	Certified for Construction or Chlorofluorocarbons
CFM	Cubic Feet Minute
CFR	Code of Federal Regulations
CGA	Compressed Gas Association
COC	Certificate of Conformance
COS	Central Operational Support
CPGDM	CERCLA Program GIS & Data Management
CPM	Counts Per Minute or Critical Path Method
CPR	Cardiopulmonary Resuscitation
CRA	Contractor Readiness Assessment
CRMP	Cultural Resource Management Plan
CV	Corrosive Vapor System
CWA	Clean Water Act
CWPF	Consolidated Waste Processing Facility
CY	Calendar Year/Cubic Yard
D&D	Decontamination & Decommissioning
DAC	Derived Air Concentration
DCG	Derived Concentration Guideline
DDC	Direct Digital Control
DGP	Data Gathering Panels
DOE	Department of Energy
DOP	Dioctyl Phthalate
DOT	Department of Transportation
EC&AS	Environmental Compliance & Analytical Services
ECP	Environmental Compliance Profile
EDD	Electronic Data Deliverables
EDE	Effective Dose Equivalent
EDTA	Ethylene-diamine-tetra-acetic Acid
EPA	Environmental Protection Agency
EPA/USEPA	United States Environmental Protection Agency
FCA	Fixed Contamination Area
FFA	Federal Facilities Agreement
FHA	Fire Hazards Assessment
FOCI	Foreign Ownership Controlling Interest

FSP	Field Sampling Plan
GET	General Employee Training
GERT	General Employee Radiological Training
GFCI	Ground Fault Circuit Interrupter
GFE	Government Furnished Equipment
GFM	Government Furnished Material
GV	Risk-based Guideline Value
H	Hour
HASP	Health and Safety Plan
HCA	High Contamination Area
HCFC	Hydroclorofluorocarbons
HEPA	High-Efficiency Particulate Air
HFC	Halogenated Fluorocarbons
HH	Hydrolysis House Building
HP	Health Physics
HRA	High Radiation Area
HSP	Health and Safety Plan
HVAC	Heating, Ventilation and Air Conditioning
IAEA	International Atomic Energy Agency
IDLH	Immediately Dangerous to Life or Health
IEEE	Institute of Electrical and Electronic Engineers
IH	Industrial Hygiene
IS&H	Industrial Safety & Hygiene
IWCP	Integrated Work Control Packages
JHA	Job Hazard Analysis
JSHA	Job Safety & Health Analysis
JSWP	Job Specific Work Plan
LF	Linear Foot
LLLW	Low Level Liquid Waste System
LLW	Low Level Waste
LOTO	Lock Out / Tag Out
LSA	Low Specific Activity
MCC	Motor Control Center
MCL	Maximum Contaminant Level
MD	Mound Site (Technical Manual)
MEIMS	Mound Environmental Information Management System
MEMP	Miamisburg Environmental Management Project
MOA	Memorandum of Agreement
MORE	Mound Occupational Radiological Exposure (Records)
MOU	Memorandum of Understanding

MS	Mine Safety
MSA	Mine Safety Appliances Company
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
MSS	Manufacturer's Standardization Society
M&TE	Measurement and Testing Equipment
NAGPRA	Native Americans Grave Patriation and Repatriation Act
NCR	Nonconformance Report
NEC	National Electrical Code
NECA	National Electrical Contractor's Association or National Energy Conservation Association
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NESC	National Electrical Safety Code
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
NHPA	National Historic Preservation Act
NIOSH	National Institute of Occupational Safety and Health
NIST	National Institute of Standards and Technology
NLGI	National Lubricant and Grease Institute
NPDES	National Pollutant Discharge Elimination System
NQA	National Quality Assurance
NTMA	National Terrazzo and Mosaic Association
NTS	Nevada Test Site
NUREG	Nuclear Regulatory
OAC	Ohio Administrative Code
OC	Occupational Control
ODOH	Ohio Department of Health
ODOT	Ohio Department of Transportation
ODS	Ozone Depleting Substance
OEPA	Ohio Environmental Protection Agency
ORC	Ohio Revised Code
ORR	Operation Readiness Review
OSHA	Occupational Safety and Health Administration
PAPR	Powered Air Purifying Respirator
PCB	Polychlorinated Biphenyl
PCM	Personal Contamination Monitor
PEL	Permissive Exposure Limit
PM	Project Manager
PPE	Personal Protective Equipment
PPG	Pittsburgh Plate Glass
PRS	Potential Release Site
PTI	Permit To Install

PTO	Permit To Operate
^{238} Pu	Plutonium-238
QA	Quality Assurance
QAP	Quality Assurance Plan
QAPP	Quality Assurance Program Plan
QC	Quality Control
RA	Radiation Area
RADCON	Radiological Controls Organization
RAPCA	Regional Air Pollution Control Agency
RBA	Radiological Buffer Area
RCRA	Resource Conservation and Recovery Act
RCT	Radiological Control Technician
RMA	Radioactive Material Area
RMMA	Radioactive Materials Management Area
RPP	Radiation Protection Program
RTGs	Radioisotope Thermoelectric Generators
RWP	Radiological Work Permit
SAP	Sampling & Analysis Plan
SCA	Soil Contamination Area
SCO	Surface Contaminated Object
SDWA	Safe Drinking Water Act
SMA	Special Metallurgical Annex
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMPP	Special Metallurgical Plutonium Processing
SOW	Statement of Work
SHO/SSHO	Site Safety and Health Officer
SSHP	Subcontractor Safety and Health Plan
SY	Square Yard
TLD	Thermoluminescent Dosimeter
TRU	Transuranic
TSCA	Toxic Substance Control Act
TSD	Treatment, Storage, and Disposal
TWA	Time Weighted Average
UL	Underwriters' Laboratories, Inc.
URMA	Underground Radioactive Material Area
USQ	Unreviewed Safety Questions
USQD	Unreviewed Safety Question Determination
UST	Underground Storage Tank
VHRA	Very High Radiation Area

WAC	Waste Acceptance Criteria
WD	Waste Disposal Building
WIPP	Waste Isolation Pilot Plant
WM	Waste Management
WWTP	Waste Water Treatment Plant

PART 2 PRODUCTS

2.1 MATERIALS - NOT USED

PART 3 EXECUTION

3.1 PREPARATION - NOT USED

END OF SECTION

SECTION 01110

SAFETY AND HEALTH

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Minimum safety and health requirements. Appropriate sections of OSHA 29 CFR 1910, General Industry standards and 29 CFR 1926, Construction Industry standards apply as well as site safety policies and procedures as required by the Buyer. The Subcontractor shall comply with all applicable codes, standards and regulations pertaining to the health and safety of their employees and sub-tiers.

1.2 SAFETY AND HEALTH PROGRAM

A. Within 10 days after the award of this subcontract, the Subcontractor shall submit to the Buyer a Subcontractor Safety and Health Plan (SSHP) for approval. Any changes to an approved SSHP must be approved by the Buyer prior to implementation. The SSHP shall encompass aspects of safety, health, environment and fire protection, specific to the project. A copy of the Buyer's safety program manual is available for review at the Buyer's field office. The subcontractor may adapt any part of the Buyer's safety program that is appropriate to its organization and scope of work. The SSHP shall contain, at a minimum, the following items:

1. A copy of the Subcontractor's safety policy signed by a corporate officer of the company that describes:

    a. The Safety and Health Organization

    b. Safety Principles

    c. Safety Philosophy

    d. Organization's safety and health goals

2. SSHP sections including, at a minimum, the following:

    a. An overview of the scope of work.

    b. An overview of the physical, chemical, biological, and radiological hazards associated with the scope of work.

c. Means of controlling the associated physical, chemical, biological, and radiological hazards with emphasis placed on the following elements. Subcontractor programs for the following may also be used to supplement this section:

1) Hazard Communication Program in accordance with 29 CFR 1910.1200.

2) A Lockout/Tagout program that meets the requirements of 29 CFR 1926.417 lockout and tagging of circuits and 1926.850, preparatory operations under Subpart T - Demolition.

3) Electrical Safety program in accordance with 29 CFR 1926-Subpart K.

4) Scaffold and ladder safety program in accordance with 29 CFR 1926-Subparts L and X.

5) Fall protection/prevention program in accordance with 29 CFR 1926-Subpart M.

6) Fire protection/prevention program in accordance with 29 CFR 1926-Subpart F.

7) Hoisting and Rigging Program in accordance with 29 CFR 1926-Subparts H and N and ANSI B-30 Series.

8) Excavation program in accordance with 29 CFR 1926-Subpart P, Excavations.

9) Welding and Cutting (Hot work) program in accordance with 29 CFR 1926-Subpart J.

10) Motor Vehicles and Mechanized Equipment program in accordance with 29 CFR 1926-Subpart O.

11) Confined space entry program in accordance with 29 CFR 1910.146.

12) Demolition in accordance with 29 CFR 1926 – Subpart T, Demolition.

13) A respiratory protection program as required by 29 CFR 1910.134. A quantitative fit test, which meets the guidelines, as applicable, of ANSI Z88.2, current edition is required. See also Section 01180, Respiratory Protection.

14) Programs as required by 29 CFR 1926-Subpart Z, Toxic and Hazardous Substances.

15) Section 01130 Asbestos.

16) Section 01150 Work in Radiological Areas.

d. Employee training requirements (see Section 01800 Training, for additional guidance).

e. Employee medical surveillance requirements including a hearing conservation program in accordance with 29 CFR 1926.101 and for toxic and hazardous substances as required by 29 CFR 1926-Subpart Z. Medical qualification for each employee should be obtained and documentation kept onsite.

f. Personal protective equipment to be used by employees for each of the site tasks in accordance with 29 CFR 1926-Subpart E

g. Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used. Emphasis should be placed on a thermal stress program that meets the guidelines of the American Conference of Governmental Industrial Hygienists (ACGIH).

h. Site control methods.

i. Decontamination procedures, as appropriate.

j. An emergency action plan for evacuation and accountability during emergencies and drills, as required by 29 CFR 1926.35

k. Specific measures for fire prevention and fire protection in accordance with the National Fire Protection Standards (NFPA).

l. Job Hazard Analyses, which will identify each specific work activity, associated hazards with that activity, and planned control measures to prevent the hazard(s). Prior to beginning work, the Subcontractor must brief the workers on job hazard analyses and subsequently document the content of the briefing and acknowledgement of understanding by attendees. A copy of hazard analyses must be maintained at the work site. Whenever the Subcontractor either discovers additional hazards, control measures become inadequate, or a new activity is identified, the Subcontractor

must submit additional hazard analyses for review and document training on the additional hazard analyses.

m. Methods to assess the effectiveness of the SSHP and health plan and job hazard analyses and continuous improvement of safety performance.

n. See also Part 3 of this specification for additional guidance on safety protocol.

B. Submit a copy of a Safety Inspection Program that includes, at a minimum, the following elements:

1. Method for documentation of daily field inspections. The subcontractor shall provide a copy of the documentation to the Buyer's Technical Representative.

2. Mechanism for verifying the safe operating condition and assurance of proper maintenance of earthmoving equipment, cranes, vehicles, pressure vessels, protective devices for portable electrical tools, and other portable equipment.

3. The Subcontractor shall not operate or permit operation by its lower-tier subcontractors any hoisting and rigging equipment that contains suspect fasteners.

4. Method for ensuring that all equipment and tools are inspected and maintained in a safe, environmentally acceptable condition and are adequate for purposes intended.

5. The Subcontractor shall establish a staging area for inspection of tools and equipment prior to use. All tools and equipment, including rental equipment, shall be identified with Subcontractors or lower-tier subcontractor's name.

C. A full-time Safety and Health Officer (SHO) without collateral duties is required to be at the project site during all work activities. The SHO will be responsible for managing an effective health and safety program and verifying compliance with the site safety and health plan and other applicable health and safety requirements. The Buyer shall approve the SHO. The SHO shall;

1. Either have a degree in safety and health (or related field) or have 8 years of equivalent work experience, AND

2. Have a total of 10 years of demonstrated work experience enforcing construction safety standards compliance with 3 years direct experience as

a SHO for decontamination and demolition projects in a radiation or hazardous waste setting.

D. The Subcontractor will arrange or provide training for all site workers in accordance with Section 01800 Training.

E. All Subcontractor site workers will attend a daily safety meeting prior to starting work. Content of the daily safety meetings should include: activities for the day; health and safety issues or concerns; discussion of applicable hazard analyses; any observations regarding safety from the previous day's work. Workers should be encouraged to provide input.

F. Conduct and document "tool box" meetings weekly with site personnel to discuss daily work tasks, share lessons learned, and provide the site personnel with a mechanism for feed back. The Subcontractor will provide prior written notification of the time, place and subject of these meetings and provide the Buyer the opportunity to observe. The Buyer reserves the right to require changes necessary to comply with the project's safety rules and regulations.

G. Reporting Requirements:

1. The subcontractor shall verbally notify the Buyer's Technical Representative and Buyer's Safety Representative immediately after an event occurs involving OSHA recordable injuries and illnesses, potentially serious hazards to personnel, or other unplanned, undesirable events including property damage. The Subcontractor and the Buyer's Technical Representative may jointly investigate each injury, illness, incident, or occurrence.

2. The Subcontractor shall submit the DOE F-5484.3 (See Attachment I), "Individual Accident/Incident Report" within two workdays of any recordable or lost time accident or injury.

3. The subcontractor shall provide a copy of its company OSHA 200/300 Log to the Buyer's Technical Representative upon request. A site-specific OSHA 200/300 form will be maintained onsite for the duration of the project.

4. A summary including man-hours, occupational first aid cases, and OSHA recordable injuries and illnesses will be provided monthly to the Buyer's Technical Representative.

H. It is the Subcontractor's responsibility to promptly correct all identified potential hazards under their control. In the event the subcontractor fails to comply with safety regulations and/or fails to correct identified hazards, the

Buyer's Technical Representative will initiate appropriate actions in accordance with contract.

I. Unsafe acts committed by subcontractor employees are considered an unsafe condition, and therefore, a hazard. The subcontractor will uniformly enforce a policy, which states the disciplinary action to be applied when employees violate safety rules. This policy will be consistent with the Buyer's safety enforcement policy.

J. The subcontractor shall ensure that the subcontractor safety requirements are flowed down to its subcontractors (sub-tiers) and that sub-tier site employees have the appropriate site orientation, safety training, and medical surveillance.

K. If the Buyer's Technical Representative notifies the subcontractor of noncompliance with the provisions of the project's safety and health programs or other client or statutory requirements, the subcontractor will take prompt action and make all efforts to correct the unsafe or unhealthy condition(s) or act(s). Satisfactory compliance shall be made within a specified time. If the subcontractor refuses to correct unsafe or unhealthful conditions or acts, the Buyer's Technical Representative will initiate appropriate actions in accordance with the contract provisions.

1.3 RELATED SECTIONS

A. Section 01130 Asbestos

B. Section 01150 Work in Radiologically Contaminated Areas

C. Section 01180 Respiratory Protection

D. Section 01190 Environmental Compliance

E. Section 01300 Submittals

F. Section 01460 Integrated Work Control

G. Section 01550 Waste Management

H. Section 01800 Training

I. Section 01900 Utility Isolation and Removal

J. Section 01915 Electrical Equipment Removal

1.4 REFERENCES

A. American Conference of Governmental Industrial Hygienists (ACGIH). Threshold Limit Values for Chemical Substances and Physical Agents, and Biological Exposure Indices

B. ANSI B30 Series, Crane Safety.

C. ANSI Z41 - 1991, Personnel Protection - Protective Footwear.

D. ANSI Z87.1 - 1989, Practice for Occupational and Educational Eye and Face Protection.

E. ANSI Z89.1 - 1986, Protective Headwear for Industrial Workers.

F. The Secretary of Labor's "Safety and Health Regulations for Construction" and material incorporated by reference, as contained in 29 CFR 1926.

G. The Secretary of Labor's "Occupational Safety and Health Standards" and material incorporated by reference, as contained in 29 CFR 1910.

H. The Secretary of Labor's "Recording and Reporting Occupational Injuries and Illnesses" and material incorporated by reference, as contained in 29 CFR 1904.

I. The Secretary of Transportation's "Federal Motor Carrier Safety Regulations" as specified in 49 CFR 350-399 and the "Hazardous Materials regulations" as specified in 49 CFR 107-

J. National Fire Protection Association (NFPA) Standard 51B, "Fire Protection in Use of Cutting a Welding Processes."

K. National Electrical Code (NFPA 70).

L. Mound site permits from MD-10286 (See Appendix L).

M. ANSI D6.1 1977 Uniform Traffic Control Devices for Streets and Highways.

1.5 SUBMITTALS

A. Subcontractor Safety and Health Plan (SSHP) with job hazard analyses and supporting Subcontractor safety programs.

B. Material Safety Data Sheets (MSDS) and chemical inventory

C. Lead Compliance Plan, as appropriate

D. Asbestos Abatement Plan

E. Resume of the Safety and Health Officer, and any proposed alternates.

F. Shoring Plan (as required)

G. Competent Person List

H. Engineering survey for structural integrity and overall work area safety in accordance with OSHA 29 CFR 1926.850-860. **A Professional Structural Engineer's certification is required**.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.1 PLANT SAFETY RULES AND REGULATIONS

A. The following supplements the requirements of OSHA Regulations. In the event of inconsistencies, the more stringent safety requirement shall govern**.**

1. Individual Conduct and Safety:

a. Alcoholic beverages and illegal drugs are not permitted on the Mound plant. Employees entering the plant under the influence of alcohol or drugs shall be removed from the plant.

b. Personnel engaging in fighting, gambling, stealing, soliciting, and horseplay shall not be tolerated and shall be removed from the plant.

c. Operators and passengers must wear seat belts at all times. Riding either in the beds of pick-up trucks or in/on other motorized moving equipment where a seat and seatbelt is not provided is prohibited.

d. Material and tools shall not be dropped or thrown uncontrolled from platforms, structures, scaffolds, or other elevated work areas.

e. Work areas should be maintained in an orderly fashion to prevent slips, trips, and falls and to facilitate proper storage of materials, tools, and equipment. Housekeeping, sanitation facilities, and refuse will be managed to prevent health and safety problems.

f. Lethal weapons of any type are strictly prohibited on Mound Property.

B. General Site Conduct and Safety:

1. The Subcontractor with the assistance of the Buyer shall make all employees aware of the plant emergency signals, including announcements, and ensure the appropriate responses are followed in the event of a plant alarm signal for a fire or other emergency, building or area evacuation. As part of its Safety and Health program, the Subcontractor shall be required to establish an evacuation plan for the work site and post evacuation routes and shelter locations in appropriate areas. New employee orientation shall include this information.

2. Evacuation of the Work Area

   a. Observe and participate in site notices to evacuate the work area. The evacuation notices may be a drill or actual event.

   b. Before evacuating the work area, shut down or render equipment or processes that could become a safety or fire hazard if left unattended.

3. Access to safety equipment, fire-fighting equipment, and fire protection systems shall be kept clear at all times.

4. Adequate sanitation facilities (e.g., restroom and hand-washing capabilities) will be provided and maintained in an orderly fashion by the Subcontractor.

5. Plant roadways, walkways, and fire hydrants shall not be blocked without prior approval of the Buyer's Technical Representative. Fire Protection Systems and alarms shall not be removed from service without prior approval of the Buyer's Technical Representative.

6. Use of explosives shall not be permitted.

7. No items or materials containing asbestos shall be provided in the supplies, articles or equipment, including individual parts or components of an assembly, delivered under this subcontract unless specifically approved by the Buyer's Technical Representative.

8. The Subcontractor shall provide ground fault circuit interrupter protection for all cord sets, receptacles, and electrical tools including connections to generators and equipment connected by cord and plug for use by employees. 29 CFR 1926 – Subpart K, Electrical shall be adhered to.

9. Work shall not be performed on any mechanical or electrical equipment or system until all sources of hazardous energy (electrical, high-pressure liquids, hazardous chemicals, etc.) are locked and tagged out in

accordance with Subcontractor's work plan and verification of isolation is complete.

10. When using ladders, at least three points of contact must be maintained.

11. The Subcontractor shall obtain written approval of the Buyer's Technical Representative prior to bringing any laser equipment onto the site.

12. The Subcontractor Safety and Health Officer will keep a logbook and complete it daily. Content will include discussion of safety-related activities that occurred throughout the day, and may serve as a calibration log for any air monitoring equipment used.

C. The Subcontractor shall survey the building(s) for structural integrity and survey the work site for overall safety. The Subcontractor shall prepare an engineering survey in accordance with Occupational Safety and Health Administration (OSHA) 29 CFR 1926 Subpart T, Demolition. **A Professional Structural Engineer's certification is required**.

3.3 PERSONAL PROTECTIVE EQUIPMENT

A. Provide personal protective and life saving equipment in accordance with 29 CFR 1926 - Subpart E and Section 01150 Radiologically Contaminated Work Areas. Types of PPE and under what conditions or activities its use is required will be discussed in the Subcontractor Safety and Health Plan. Emphasis should be placed on the following:

1. Appropriate fall protection measures in accordance with 29 CFR 1926 – Subpart M, Fall Protection.

2. Types of PPE based on specific hazards (physical, chemical, biological, radiological) encountered including hand and foot protection. Provide training in the proper use and maintenance of PPE.

3. Use of hard hats including hard hats worn at all times when working in construction and demolition areas. The hard hat and the wearing of the hard hat must conform to ANSI Z89.1 Class B.

4. Use of eye protection including safety glasses with rigid side shields worn at all times when working in designated construction and demolition areas. Safety glasses shall comply with ANSI Z87. Additional eye protection may be necessary when grinding, welding, or handling hazardous materials.

5. Use of foot protection to include steel-toed, leather upper work boots that cover the ankle are required in all construction and demolition areas.

6. Use of hearing protection ensuring hearing protection is worn when an employee works in a hazardous or posted noise areas or if the noise the employee is creating exceeds the guidance set forth in 29 CFR 1926.52

7. Proper work attire including the requirement that employees wear full-length trousers and shirts with at least a four-inch sleeve.

3.4 OCCUPATIONAL EXPOSURE

A. Exposure to chemical, physical, biological, and radiological hazards are to be minimized through the use of engineering controls, administrative controls, and as a last resort, PPE.

B. OSHA's Permissible Exposure Limits (PELs) will be used for comparison with direct, indirect, and integrated personal monitoring results.

3.5 HAZARD COMMUNICATION

A. Pursuant to OSHA's Hazard Communication Standard (29 CFR 1926.59) for construction, access to MSDS's for all hazardous substances shall be present at the work site and accessible to all employees. The Buyer will provide MSDSs for existing Buyer owned materials left on site when the Subcontractor mobilizes.

B. Adhere to personal protective equipment and safety and health recommendations from manufacturer's MSDSs and the Subcontractor health and safety plan.

C. Submit a copy of MSDS prior to delivery of material to the work site.

D. Subcontractor Employees must comply with all aspects of OSHA's Hazard Communication Standard (29 CFR 1926.59 and 29 CFR 1910.1200).

3.6 EXCAVATION

Subcontractor is responsible for:

A. Performing excavations in accordance with 29 CFR 1926, Subpart P and site procedure MD-10286, Excavation/Soil Disturbance, Section O5. An excavation/soil disturbance permit is required prior to start. This permit can be obtained through the Buyer's Technical Representative with a 48-hour advanced notice.

B. Locating buried utilities prior to excavation.

C. Ensuring an excavation competent person shall be at the work site if work is being conducted at an excavation 4 feet or greater in depth. The Subcontractor shall also submit a shoring plan for review that addresses cave-in protection measures in the health and safety plan and activity hazard analyses.

D. Performing shoring calculations as required per 29 CFR 1926, Subpart P.

3.7 CONFINED SPACE

The Buyer will provide information to the Subcontractor on all confined spaces known to exist in the work area to the best of the Buyer's knowledge. The Subcontractor is responsible for:

A. Establishing the presence of confined spaces either unidentified by the Buyer or confined spaces that are created as work progresses.

B. Evaluating all confined spaces for hazards when entry into a confined space is needed, determining hazard control methods and air monitoring requirements, and documenting this process on a form or other means of documentation.

C. Performing work in accordance with 29 CFR 1910.146.

D. Issuing of confined space entry permits prior to entry of a confined space.

3.8 LOCKOUT/TAGOUT

A. In accordance with 29 CFR 1910.147, the Buyer's Technical Representative will perform the initial (administrative) lockout/tagout of the permanent plant power or equipment and will remove the final lock. A Five-day advance notice is required. Prior to BTR lockout, Subcontractor provided temporary power shall be locked and tagged using the subcontractor lockout tagout program as defined by 29 CFR 1926.417. Once utilities have been isolated the Subcontractor's Lockout/Tagout Program shall be used.

B. The Subcontractor will designate authorized individuals responsible for application and removal of Lockout/Tagout in accordance with the Subcontractor procedure. The subcontractor must ensure that all lower-tier subcontractor personnel are trained to the procedure. The Subcontractor shall maintain documentation of training and submit training documents to the Buyer's Technical Representative for information.

C. Key Points of the Subcontractor LO/TO Program shall include:

1. A lockout/tagout permit is required before performing work on operating equipment or system.

2. After lockout/tagout of a system, a walk-down of the system shall be performed to determine if there are entry points remote to the lockout/tagout origin point. During the initial walk-down and anytime thereafter, work shall be suspended when a question arises as to the correct location of an entry point on a system.

3. Prior to working electrical equipment that is under the protection of a lockout/tagout, personnel shall verify that isolation and de-energization has been accomplished. All wiring, circuit elements, electrical parts, and any other part of the circuits(s) shall be tested to verify de-energization before making contact with the circuit by hand or tool.

4. Test equipment shall be used to test the circuit elements and electrical parts of equipment at the point where work is to be performed to verify the circuit elements and equipment parts are de-energized before making contact with hand or tool.

5. The test shall determine if any energized condition exists as a result of inadvertently induced voltage or unrelated backfeed, even though specific parts of the circuit have been de-energized and presumed safe. If an energized condition is encountered, work shall be discontinued immediately.

6. Test equipment used to test for de-energization may be analog or digital, and shall be capable of indicating zero voltage. Test equipment shall be tested on a known energy source before and after use.

7. Prior to working on mechanical equipment and systems that are under the protection of a lockout/tagout, personnel shall verify that the equipment or system has been isolated and depressurized and/or drained such that no stored energy is present.

8. If a locking device cannot be applied, a “Danger-Do Not Operate” tag may be used, without a lock, and the tear-off tab placed in a lockbox. A tag used without a lock shall be supplemented by at least one additional (i.e. person at the electrical panel) safety measure that provides a level of safety equivalent to that obtained by use of a lock.

9. “Danger-Do Not Operate” tags, and associated locking devices or devices providing a level of safety equivalent to that obtained by use of a lock, shall be the only devices used to control against hazardous energy releases during construction and/or maintenance.

10. All locks used for lockout devices shall be substantial, red in color or identified red. Red locks shall not be used for any other purpose. All

locks used for lockout/tagout shall be identified with the employee's name and badge number or company.

3.9 HOISTING AND RIGGING

A. Perform hoisting and rigging activities in accordance 29 CFR 1926 Subparts H and N, and ANSI B-30 Series.

B. Hoisting or rigging activities using forklifts, backhoes, and trackhoes are not permitted unless the manufacturer's documentation specifies the equipment is designed for that purpose and lifting limits are properly identified.

3.10 LEAD

A. Perform work in accordance with 29 CFR 1926.62 when construction activities present a potential for lead exposure.

B. Submit a project specific Lead Compliance Plan based on anticipated work activities in compliance with Section 01300 and Section 01300 Attachment I Submittal Schedule.

C. Engineering controls are mandatory regardless of PPE provided.

3.11 HEARING PROTECTION

A. Develop and implement a continuous effective Hearing Conservation Program in accordance with 29 CFR 1926.101.

B. Determine the boundaries where continuous or intermittent noise is expected to exceed 85 dBA and enforce the use of hearing protection within those boundaries.

3.12 EMERGENCY SERVICES AND EQUIPMENT

A. The Subcontractor shall provide first aid supplies, emergency shower and/or eyewash as appropriate, and fire extinguishing equipment and training in accordance with 29 CFR 1926.

B. The Buyer's Technical Representative will assist the Subcontractor with obtaining emergency ambulance and fire fighting service.

3.13 MOVEMENT AND OPERATION OF CRANES AND HIGH-PROFILE MECHANICAL EQUIPMENT

A. In addition to the requirements identified in 29 CFR 1926 (Subpart N) with emphasis on the following is required:

1. Minimum safe distances from energized power lines will be observed in accordance with 29 CFR 1926.550.

2. When equipment is moved, the boom or mast shall be in a retracted traveling position. A spotter will direct movement of the equipment and assist the operator to prevent contact with objects on the ground or overhead. Personnel on the ground shall not be in contact with the equipment without consent of the spotter.

3. Cranes, man-lifts, and other high-profile equipment will not be operated during severe weather conditions (including high wind and lightning) as specified by the manufacturer. The criteria for shutdown of this equipment will be included in the Subcontractor's health and safety plan or in its activity hazard analyses.

3.14 VENDORS

A. Subcontractor-arranged vendors such as flammable liquid tank trucks, refueling vehicles, and other vendor delivery service vehicles may be inspected and may require escort while on Government property. The Subcontractor will notify the Buyer's Technical Representative of deliveries of materials and/or services 24 hours in advance.

3.15 VEHICLE AND EQUIPMENT CONTAMINATION SURVEYS

A. Vehicles and equipment are subject to security inspections and contamination monitoring when entering and exiting the Plant. Inspections will be made at access portal or at locations designated by the Buyer's Technical Representative.

3.16 INSPECTIONS BY THE BUYER

A. The safety, health, fire, and environmental protection personnel of the Buyer and the Government will inspect facilities and operations to ensure compliance.

3.17 EQUIPMENT AND TOOLS

A. Inspect, maintain, and ensure that equipment and tools used are safe, environmentally acceptable, and adequate for the purpose intended. Defective or otherwise unsafe equipment shall be tagged "Do Not Use" and immediately removed from the work site to a secure place to prevent inadvertent use. Re-inspect repaired items before reentering the site.

B. Utilize equipment only for the purpose for which it was designed. Modifications, extensions, replacement parts, or repairs of equipment shall

maintain at least the same factor of safety as the original equipment. Modifications shall be authorized in writing by the manufacturer and the authorization provided to the Buyer's Technical Representative upon request.

3.18 SIGNS AND BARRICADES

A. The Subcontractor shall consider the safety of all others not directly performing work under contract and shall barricade or otherwise protect areas where the Subcontractor is performing work to prevent unauthorized personnel from inadvertently entering the areas.

1. The job site shall be barricaded with substantial barricades such as temporary fences and sawhorses. Barricade warning tape may be used to barricade a site only in temporary situations (2-3 days) or to supplement more substantial barricades. If a job site is long term, more substantial and permanent barricades such as sawhorses, expanded plastic fencing, etc., shall be used.

2. Excavations shall be protected with barricades or fencing. Flashing lights are required if the excavation will be left open overnight.

3. When the job site is exposed to roadways, traffic control devices, barricades, color codes and flag persons shall conform to ANSI D6.1-1977 "Uniform Traffic Control Devices for Streets and Highways" will be used to mark off the roadway exposure. If the roadway will be exposed overnight, the barricades shall be equipped with flashing lights.

4. Adequate signage shall be used in conjunction with barricades/warning tape when appropriate to warn others of potential hazards.

3.19 DEMOLITION ACTIVITIES

A. Demolition activities will require appropriate engineering controls (e.g., wet methods) and appropriate air monitoring to demonstrate compliance with federal, state, and local regulations, including prevention of employee exposure to dust, silica, and fiberglass per OSHA exposure limits.

END OF SECTION

SECTION 01130

ASBESTOS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for removal and disposal of all regulated asbestos containing materials.

1. Description

a. Verify state notification and plant permits are complete or being processed

b. Perform work in accordance with 29 CFR 1926.1101, and 40 CFR 61; State of Ohio Regulations; and additional job-specific requirements stated herein. The non-mandatory Appendixes B and F in 29 CFR 1926.1101 are mandatory for this work. Determine the most recent asbestos removal and disposal requirements established by applicable federal, state, and local government regulations. If conflicts exist between applicable requirements and this section, the most stringent provisions apply.

1.2 DEFINITIONS

A. The following definitions are in addition to those provided in 29 CFR 1926.1101(b), and 40 CFR 61.

1. Abatement: Asbestos work directed by procedures to control fiber release includes, but is not limited to, preparation, removal, encapsulation, enclosure, and cleanup activities.

2. Authorized Visitor: Buyer and his representative or a representative of any regulatory or other agency having jurisdiction over the project.

3. Bulk Sample: Sample of building material or other material taken for asbestos content analysis.

4. Encapsulant: Material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers. The encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).

5. Engineering Control: Mechanism for controlling dispersal of airborne asbestos at point of origin including, but not limited to, source enclosure, exhaust ventilation, and mechanical collection.

6. PPE: Device worn by an individual to provide protection from inhalation or contact with airborne asbestos fibers.

1.3 REFERENCES

A. Section 01110 Safety and Health

B. ANSI – American National Standards Institute, ANSI Z9.2, Fundamentals Governing the Design and Operation of Local Exhaust Systems

C. ANSI – American National Standards Institute, ANSI Z88.2, Standard Practices for Respiratory Protection

D. 29 CFR 1926.1101, OSHA Asbestos Standard for the Construction Industry

E. 29 CFR 1910.1200, OSHA Hazard Communication

F. 29 CFR 1926.103 and 1910.134 OSHA Respiratory Protection

G. 29 CFR 1910.145, Specifications for Accident Prevention Signs and Tags

H. 40 CFR 61, Subparts A and M, Environmental Protection Agency (EPA) Regulation for Removal and Disposal of Hazardous Materials, National Emission Standards for Hazardous Air Pollutants: Asbestos

I. 40 CFR 302, EPA Designation, Reportable Quantities, and Notification Requirements under the Comprehensive Environmental Response, Compensation, and Liability Act

J. 40 CFR 763, Asbestos Hazard Emergency Response Act

K. 49 CFR 171, DOT General Information, Regulations, and Definitions

L. 49 CFR 172, DOT Hazardous Materials Table, Special Provisions, Hazardous Materials Communications, Emergency Response Information, and Training Requirements

M. ORC Chapter 3710 and OAC Rule 3701-34, Ohio Department of Health Asbestos Hazard Abatement

N. OAC 3745-20, Ohio EPA Asbestos Emission Control Rules

O. NIOSH 582 Sampling and Evaluating Airborne Asbestos Dust

P. NIOSH Method 7400 from the NIOSH Manual of Analytical Methods

Q. UL Test 723, Test for Surface Burning Characteristics of Building Materials

R. Regulation 150 of the Montgomery County Combined General Health District's Hazardous Air Pollution Control Regulations

1.4 SUBMITTALS

A. Prejob Submittals: Before starting Work, provide the following submittals for information.

1. License: Copy of the Ohio Department of Health Asbestos Hazard Abatement Contractor License.

2. Work Plan (Abatement Plan): Provide a work plan before the start of work. See Attachment 1 for work plan requirements.

3. Competent Person(s): List of designated competent person and one alternate, qualification and training certificates, as well as required State certifications. Update list as individuals change.

4. Emergency Personnel: Qualifications of the person in charge of the emergency program.

5. Trained Personnel: List of training received by personnel. Provide employee's full name, job title, title of course(s), training date, training organization, certification number, and copy of required State certification. Training documentation must be maintained onsite.

6. Testing Laboratory Certifications: Independent testing laboratory proof of compliance with OSHA requirements regarding NIOSH training and testing methods. Evidence of current successful participation in American Industrial Hygiene Association (AIHA) Proficiency Analytical Testing (PAT) Program. Evidence of current, valid license issued by regulatory body having jurisdiction that radioactive samples can be accepted as applicable.

7. Medical Examinations: List of personnel receiving the required medical examinations. Include the employee's full name, social security number, and date of most recent examination. Examination must be in compliance

with 29 CFR 1926.110(m) and indicate acceptability to wear respirator. Medical qualifications must be maintained onsite.

8. Copies of required Ohio Department of Health Asbestos Hazard Abatement Project Notification and Ohio EPA Notification of Demolition and Renovation.

9. HEPA Filter Certification: Manufacturer's certification that equipment is in compliance with ANSI Z9.2 (includes HEPA-filtered exhaust systems and vacuum cleaners).

B. Provide the following submittals for record in conjunction with final clearance acceptance throughout the course of work for information.

1. Daily Negative Pressure Differential Log: Log of pressure differential for each negative pressure enclosure. Submit as requested and upon final clearance.

2. Chemical Exposure Monitoring: Exposure monitoring results necessitated by the use of chemicals related to abatement activities.

3. Air Monitoring Test Results: Copies of the air sample documentation and analyses made by the testing laboratory. Deliver test results, including the results of the quality control blind recounts, as required by 29 CFR 1926.1101, Appendix A, within 72 hours. As a minimum, these submittals are to include information required by 29 CFR 1926.1101(f)(2).

4. Negative Exposure Assessments in accordance with 29 CFR 1926.1101(f)(2)(iii).

5. Project Documentation: All daily pre-job work briefings shall be maintained onsite as well as daily personnel entry/exit logs for all regulated work areas. A logbook of project activities should be maintained and completed daily by the competent person. Submit copy prior to final clearance.

6. Shower Filters: Description of filter system and certification that the system will filter to 5 microns.

7. Request for Utilities Shutdown: Listing of utilities and systems including ventilation systems to be shutdown to perform the work.

C. Submittal Updates

1. Update submittals to indicate current status. Employees are not permitted to work if submittals do not demonstrate all requirements are met.

2. Revisions to regulatory notifications: Must be submitted to Buyer within 24 hours of issuance. Subcontractor must give Buyer 24-hour notice and receive approval from the Buyer 24 hours for review prior to terminating notifications for final clearance.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Handling

1. Bag all asbestos-contaminated materials at the immediate removal area, move to a designated cleaning area within the regulated area, and bag again (double-bagged).

2. Wrap, label, and seal large pieces of waste materials or building/equipment components containing asbestos with two layers of 6-mil polyethylene sheeting.

3. Package asbestos waste material containing sharp-edged components (e.g., nails, screws, tin sheeting, chicken wire, etc.) in such a matter that the integrity of the packaging is not compromised.

4. HEPA Vacuum and/or wet-wipe bags, drums, and wrapped material before removing from the regulated area.

5. Do not drop or throw asbestos material or disposal bags to the ground.

6. Ensure waste packages are labeled in accordance with applicable regulations.

7. Waste packages shall be sized so as to fit into supplied waste containers. (See Section 01550 Waste Management).

B. Central Collection Point

1. Cover the ground below the double-bagged, wrapped, or drummed waste with minimum 6-mil plastic sheeting.

2. Place barrier tape of flagging, and asbestos warning signs around stored waste.

3. Limit storage to 30 calendar days or until a full container load is accumulated, whichever occurs first. Contact Buyer for removal of full containers.

PART 2 PRODUCTS

2.1 MATERIAL

A. Use only surfactant or wetting agents sold for the purpose of asbestos wetting. Materials intended for other uses, such as household detergents, are not permitted.

B. Plastic used for enclosures: Flame spread indexes of five and smoke development index of 30-110 in accordance with UL Test 723. (White Griffolyn T-55 FR meets this requirement.) Plastic shall be minimum 6-mil thickness.

C. Wood: Treated fire-retardant lumber or painted with fire-retardant paint.

D. Disposal bags: Minimum 6-mil polyethylene with preprinted labels in accordance with Standards 29 CFR 1926.1101 and 49 CFR 172.

E. Encapsulants of Lock Down – shall be specifically designed for application and adherence to substrate surface. Encapsulant/lock down shall be of type manufactured specifically for asbestos abatement and shall be applied in accordance with manufacturer's directions.

2.2 EQUIPMENT

A. Equipment having a HEPA filter must have the original manufacturer's statement that the equipment complies with ANSI Z9.2. The equipment must be in good repair and must be maintained in accordance with manufacturer's recommendations.

PART 3 EXECUTION

3.1 PREPARATION

A. Medical Surveillance

1. Before the start of work, personnel shall receive a physical examination in accordance with 29 CFR 1926.1101(m). In addition to the requirements of 29 CFR 1926.1101(m), the following applies:

a. Conduct medical examinations regardless of the number of days of anticipated or actual airborne exposure levels or the type of respiratory protection.

b. Medical examination is mandatory before allowing access to regulated areas.

c. If a worker's medical examination anniversary date lapses, the worker is not allowed to continue work until after the required examination has been performed and the appropriate documentation submitted.

d. Examining physician(s) documentation shall acknowledge that information stated in 29 CFR 1926.1101(m) was received.

B. Communication of hazards: In addition to the requirements of 29 CFR 1926.1101(k), the following applies:

1. Signs

a. Signs shall be legible at least 20 ft away and conform to 29 CFR 1910.145 (red, black, and white).

2. Labels

a. Labels for wrapped or drummed asbestos waste material shall be red, black, and white, and conform to 29 CFR 1910.145.

b. Label vacuum cleaners and negative air-pressure machines in accordance with 29 CFR 1926.1101(k).

c. Label bags, containers, or wrapped material in accordance with 49 CFR 171 and 172 including the name of the waste generator and the location at which the waste was generated.

3. Training

a. If a worker's anniversary date for training lapses, the worker is not allowed to continue with work until after the required training has been performed and documentation submitted.

b. Provide copies of certification cards/papers (including dates) of the personnel receiving and conducting the training upon request.

c. Persons performing personal air monitoring shall have attended and passed the NIOSH 582 course, or are a certified Occupational Health and Safety Technologist, Industrial Hygienist-In-Training, Certified Industrial Hygienist, or are an Ohio Department of Health Certified Asbestos Hazard Abatement or Evaluation Specialist.

d. Personnel performing analysis of airborne asbestos samples shall be included in the AIHA or the NIOSH/AIHA Proficiency Analytical Testing Program, and have passed the NIOSH 582 course.

e. In the event that the Subcontractor's workers are involved in the removal or handling of radiologically contaminated asbestos-containing materials as determined by the Buyer, those workers shall have successfully completed the Buyer's Radiological Worker II Training Course (or equivalent). Evidence of such training will be maintained and provided upon request.

4. Registration

a. Workers and Competent person shall be certified by the Ohio Department of Health, as applicable.

3.2 INSTALLATION/APPLICATION/ERECTION

A. Competent Person

1. In addition to the requirements stated in 29 CFR 1926.1101(o), the competent person shall:

a. Ensure specified submittals are provided.

b. Ensure workers comply with training, respiratory fit testing and medical surveillance requirements.

c. Ensure that a work plan meeting the requirements of Attachment 1 is submitted and available at the work site.

d. Remain on the work site whenever work is being performed.

B. Protection

1. Respiratory Protection

a. Respiratory protection requirements are identified in Section 01180 and shall be in compliance with 29 CFR 1910.134 and 1926.103.

b. Wear respirators when doffing protective clothing.

c. Ensure adequate respiratory protection is provided for air contaminants from other sources (e.g., spray poly, encapsulants).

d. Comply with the respiratory protection requirements specified in the Radiological Work Permit for a given work area as established by the Buyer's Radiological Control personnel where applicable.

2. Protective Clothing

a. In addition to the requirements stated in 29 CFR 1926.1101 (I), the following applies:

(1) Provide personnel with disposable coveralls, head and foot coverings, gloves, and eye protection for Class I-IV activities. Wear protective clothing and equipment when performing asbestos removal work or where required under 29 CFR 1926.1101.

(2) Street clothes are not permitted under disposable clothing. Nondisposable clothing is considered asbestos contaminated, and shall be laundered or disposed of as asbestos contaminated.

b. Comply with the personal protective equipment requirements specified in the Radiological Work Permit for a given work area as established by the Buyer's Radiological Control personnel where applicable.

C. Regulated Area

1. In addition to the requirements of 29 CFR 1926.1101(e), the following applies:

a. Establish the regulated area prior to precleaning activities, constructing enclosures, or activity that could disturb asbestos fibers.

b. Access to the regulated area is limited to authorized personnel meeting the requirements for protective equipment and clothing, medical surveillance, training, and respirator fitting. Buyer’s personnel will enter the regulated area to perform inspections and testing.

c. Subcontractor shall record the names and affiliations of all personnel entering the regulated area on a daily basis.

d. Flag off entrances and approaches to the work areas with "Asbestos-Danger" labeled barrier tape, and post danger signs. Danger signs are required regardless of the anticipated or actual airborne exposure levels (even at or below the permissible exposure limit). Signage shall be in accordance with 29 CFR 1926.1101.

e. Regulate work requiring flagging and proper danger signs, until written notification of clearance is received from the Buyer.

2. The Subcontractor shall comply with all requirements specified within the Radiological Work Permit for a given work area as established by the Buyer's Radiological Control personnel where applicable.

D. Exposure Assessment

1. Submit initial exposure assessment as part of the Work Plan in accordance with 29 CFR 1926.1101.

2. A regulated area is required for asbestos work activities including when there is a "negative exposure assessment".

3. Personnel and area monitoring (which may include daily and periodic monitoring) is required including when there is a "negative exposure assessment".

E. Methods of Compliance

1. Conduct work using state-of-the-art work practices and engineering controls as required in 29 CFR 1926.1101(g) and Appendix F, and the following:

a. Pre-clean work areas prior to setup of the containment system. Ensure the area is controlled as a regulated area, and the workers are to be provided with appropriate protective equipment.

b. Equip high-speed portable hand tools used to drill, cut, or otherwise disturb ACMs with an HEPA-filtered exhaust ventilation. A HEPA-filtered vacuum cleaner, designated for asbestos, can also be used. Position the hose attachment in such a manner to ensure the vacuum will capture dust.

c. Adequately wet ACMs with amended water before disturbing or removing.

d. Wet methods are mandatory except when a situation restricts or prohibits the use of water, such as freezing or electrical hazards. The Buyer's written approval is required as is a written waiver from the EPA specific to each applicable situation.

e. Contain loose ACM as it is removed. Assure all loose ACM is contained at the end of each work shift.

f. After completion of stripping/removal work, wet brush or sponge surface from which ACMs have been removed. Remove visible residue.

g. Encapsulate exposed surfaces, which may contain friable asbestos (including all cleaned surfaces). After cleaning apply a thin coat of encapsulation agent (lock-down material).

h. Vacuum and remove disposable clothing before leaving the regulated area. Disposable protective clothing is considered asbestos waste.

i. Decontaminate tools and equipment by vacuuming and wet wiping before removing from the regulated area. Cleaning materials, including water (unless filtered), are considered as asbestos-containing waste materials.

j. Filter water that contains asbestos through a 5-micrometer filter system before discharging into the sanitary sewer system. Documentation describing the type of filter system should be included in the work plan. Used filters are considered asbestos-contaminated waste.

k. Negative-Pressure Enclosure

(1) Work area enclosures shall have a 2-ft square clear plexiglass window approximately 5 ft above the floor, which permits inspection of the work area from outside the enclosure.

(2) The negative-pressure air filter system shall provide a minimum of one air change every 10 minutes (six air changes per hour). The negative-pressure filtration system shall operate continuously until the Buyer has approved final clearance.

(3) Vent the air leaving the HEPA-filtered negative-pressure machine to the outside of the building.

l. Negative-Pressure Glovebag

(1) Where glovebag control methods are used, the Subcontractor shall ensure that the glovebags are used only for the removal of pipe insulation in accordance with the manufacturer's design and specifications without modification. Glovebags will be minimum 6-mil thick plastic, seamless at the bottom, installed in such a manner as to completely cover the circumference of the pipe substrate, and may only be used once (no sliding). Prior to removal of asbestos, installed glovebags shall be smoke-tested by the Subcontractor in the presence of the Buyer and any leaks sealed prior to use. For Class I glovebag operations, at least two workers shall be utilized, and prior to disposal, glovebags shall be collapsed by removing contained air by use of HEPA vacuum. Impermeable drop cloths shall be placed on surfaces beneath all glovebag operations.

m. Cut and Wrap

(1) Where "cut and wrap" control methods are used, the Subcontractor shall wrap the material to be removed with two impermeable layers of minimum 6-mil thickness plastic sheeting prior to dismantling the underlying substrate (for instance, cutting out a section of insulated pipe). The substrate will only be cut/dismantled at points, which are not covered/treated with asbestos material in such a manner that does not disturb any adjacent/nearby ACM. Removed sections will be sized so as to allow safe removal and handling of the resultant packaged ACM/substrate, and size of removed sections will be coordinated with the Buyer's Technical Representative so as to permit safe and proper conveyance of material for disposal. The Subcontractor, in accordance with applicable regulations, will properly label removed sections of ACM/substrate as asbestos waste.

n. All work areas where ACM is removed and/or packaged shall be regulated in accordance with 29 CFR 1926.1101.

F. Hygiene Facilities and Practices

1. In addition to the requirements of 29 CFR 1926.1101(j), the following applies:

a. In situations where a contiguous shower may not be feasible provide a remote shower. Personnel leaving the regulated area shall clean protective clothing and respirator with a HEPA vacuum, remove the protective clothing (disposing as asbestos-contaminated waste), don clean clothing, and proceed directly to the nearby shower facility. Do not remove respirators until in the shower.

G. Area Decontamination and Clearance

1. After all asbestos has been removed, contamination cleaned up and waste removed, each regulated area shall pass a thorough initial inspection conducted by the Subcontractor's competent person. Once the Subcontractor approves the area, the Buyer will perform a visual inspection to verify the adequacy of the work. Items to be checked during the first visual inspection include, but are not limited to, the following:

a. The adequacy of the removal of asbestos-containing material from the substrate and the absence of visible asbestos-containing materials and/or other suspect materials.

b. Cleanliness of the work area and decontamination areas: there shall be no visible accumulations of dust or debris on exposed surfaces, ductwork, piping, or floors.

c. In the case of work in areas which have dirt floors, all visible asbestos-containing debris in and on the loose soil shall be removed down to the level of the hardpan (hard-packed soil). Any such debris that protrudes up through the hardpan shall be excavated and removed. The Subcontractor is forewarned that the Buyer may rake and sift through the loose soil in order to expose any existing asbestos debris within said layer

After the work area has successfully passed this inspection, the Subcontractor shall apply encapsulant to all surfaces within the regulated area.

The Buyer shall conduct a second visual inspection of the work area after application of the encapsulant. Items to be checked during the second visual inspection include, but are not limited to, the following:

d. Cleanliness of the work area and worked decontamination unit; accumulation s of loose dust or debris on surfaces, walls, and floors.

e. Complete coverage of the exposed surfaces by the encapsulant.

Only after the work site has successfully passed this inspection, will the Buyer conduct final air monitoring. The Buyer shall perform the final air clearance tests after the work site has passed the final visual inspection and a period of approximately 24 hours has passed to allow the encapsulant to dry.

2. Final air tests will be performed by the Buyer to determine and document air quality upon completion of all abatement activities. Final air clearance samples will be conducted in accordance with the NIOSH 7400 Method. Samples shall be analyzed by phase-contrast microscope (PCM). Final air samples shall be taken using aggressive sampling methods. Final air sampling results will not exceed 48 hours (post sample collection).

3. Final clearance will not be given until the Buyer accepts the area and has issued a written notification. Final inspection will be made within 72 hours of the request. Work areas shall remain as regulated areas until accepted.

3.3 FIELD QUALITY CONTROL

A. Testing Laboratory

1. Provide an independent testing laboratory to perform analyses. The analyzing laboratory shall comply with OSHA requirements regarding NIOSH training and testing methods. Personnel performing analysis of airborne asbestos fibers shall have attended and passed the NIOSH 582 course. Laboratory shall participate in the AIHA's PAT Program. For samples that have been determined to be radioactively contaminated, the analyzing laboratory must possess a current, valid license authorizing the laboratory to receive, acquire, possess, and/or transfer radioactive material as issued by the regulatory body having jurisdiction. The subcontractor must verify that the laboratory can accept the specific isotopes and quantities present on the samples submitted.

B. Air Sampling and Analysis

1. Perform sampling QA/QC procedures in strict accordance with 29 CFR 1926.1101, Appendixes A and B. In addition, provide precision within that specified by NIOSH Method 7400.

2. Post sampling results at the work site immediately after obtaining the results but not later than 48 hours after the samples were taken.

3. The competent person shall evaluate air-sampling results immediately upon receipt and initiate all corrective actions.

4. Compare results of area sampling taken outside the regulated area during abatement activities to the prevalent background level. If any results exceed the prevalent background level (which cannot exceed the action level of 0.1 f/cc), immediately stop work, extend the boundaries of the regulated area, and notify the Buyer. Do not continue work until the problem is identified and corrected. Within 8 hours of receiving the monitoring results exceeding the background level, provide the Buyer with a written report describing the problem and corrective actions taken.

C. Prevalent Level Monitoring

1. Take background measurements before beginning work or site preparation. Take a minimum of two samples inside the proposed regulated area. If the average background measurement exceeds .01 f/cc, the Buyer and Subcontractor shall establish the accepted clearance level in writing before the start of work. At no time will the background level be allowed to exceed 0.1 f/cc.

D. Personal Monitoring

1. Conduct daily monitoring for work activities regardless of the results from historical data or the anticipated or actual airborne exposure levels. At a minimum, monitor 25% of each group of representative employees in the regulated areas for excursion limits and permissible exposure limits.

   a. Class I activities require daily monitoring whenever work is being performed.

   b. Class II and III activities require monitoring for 3 days, and may be reduced to monitoring 1 day a week if results show levels below the PEL.

E. Clearance Sampling:

1. Buyer will conduct clearance monitoring in accordance with the NIOSH 7400 PCM.

2. Negative-pressure filtration systems for negative-pressure enclosures shall continue in operation during all clearance sampling until the final clearance results are accepted.

3. Buyer will conduct clearance monitoring for negative-pressure enclosures. Calibrate sampling pumps to draw an average airflow rate of 10 L/min. Volume of air sampled shall be approximately 1200 L.

END OF SECTION

ATTACHMENT 1

WORK PLAN

A. The work plan shall include a complete narrative description of the proposed work methods and procedures used. The plan is to be signed by the designated competent person. The work plan shall be written so as to satisfy the requirements of the Ohio Department of Health's Asbestos Hazard Abatement Project Agreement (OAC 3701-34-11). As a minimum, the plan shall include:

1. Project title, work order number, and brief summary of the work.

2. Name of the competent person(s) in charge of abatement activities.

3. Provide a schedule listing areas in the order work is to be performed, required utility shutdowns (including ventilation systems) for each area, and anticipated completion dates.

4. Initial exposure assessment including supporting documentation.

5. Details of the enclosure layout and erection and methods used to provide negative-pressure exhausting including calculations where applicable.

6. Work methods used to remove the ACMs. Identify the wetting agent and other chemicals (e.g., lock-down encapsulant) and provide material safety data sheets.

7. Detailed description of the air-monitoring and analysis program. Firm performing the air monitoring, name and qualifications of the person supervising the monitoring, and name and qualifications of the person performing the monitoring.

8. Administrative procedures used to enforce the regulated area. Include personnel hygiene procedures, personnel protective device and clothing requirements, entry and exit procedures (including decontamination), prohibited activities, and work practices to be observed in the regulated area. Include a description of water filter systems.

9. Emergency program. Designate medical personnel needed in the regulated area to assist or rescue injured personnel. Emergency planning shall include considerations of fire, explosion, toxic atmospheres, electrical hazards, slips and falls, confined spaces, and heat-related injuries.

10. Medical examination program.

11. Respiratory protection program. Include information explaining the respirator selection logic, including personal monitoring data summaries if other than supplied-air respiratory protection is used.

12. Training programs.

13. Written Hazard Communication Program in accordance with 29 CFR 1926.59(e).

14. Describe the method for labeling waste and posting signs.

15. Methods for transporting asbestos-containing waste to the staging area established in conjunction with the Buyer's Technical Representative.

16. Other requirements specifically listed in Section 01130 to be included in the Work Plan which have not been included in this listing.

END OF SECTION

SECTION 01150

WORK IN RADIOLOGICALLY CONTAMINATED AREAS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for decontamination, dismantlement, demolition, and excavation activities in areas containing radioactive contamination.

1. Radiological Protection Program Overview

a. The Buyer's Radiation Protection Program (RPP), which is approved by the Department of Energy (DOE), incorporates the requirements of 10 CFR Part 835, "Occupational Radiation Protection; Final Rule," for all activities on the Site that cause, or could cause, occupational radiation exposure from radioactive materials or radiation-producing devices. The Subcontractor shall comply with the Buyer's RPP, see Appendix C. The Subcontractor shall ensure its personnel are trained and perform the job duties within the requirements of the Buyer's RPP.

b. The Subcontractor and all lower-tier Subcontractors shall follow the Radiological Control Requirements for work in posted radiological areas. The Subcontractor shall coordinate and involve the Buyer's Technical Representative in planning and execution of work activities in posted radiological areas. Specific requirements for working in a posted radiological area are included on a Radiological Work Permit (RWP).

B. Radiological Facility Overview

1. Buildings may be posted as a controlled area, radiological buffer area (RBA), Fixed Contamination Area (FCA) or any combination thereof, depending on the extent of radiological contamination. Specific rooms and systems may also be posted as radiological areas due to the presence of radioactive contamination. The interior of certain contaminated equipment may also be posted as a radiation area (RA) when accessed. All inaccessible areas such as pipe interiors, equipment internals are considered to be internally contaminated until proven otherwise.

2. Overhead spaces above 7 feet are suspect for loose contamination and should be surveyed prior to access or work. Allow 5 working days for Buyer's radiological personnel to perform surveys and report results.

3. The interiors of any building's plenums, filter banks, ventilation ducts, and exhaust stacks for a radiological contaminated building are designated as radiological areas.

4. Portions of the soil areas surrounding buildings may be posted as underground radioactive material areas (URMA). When soil is disturbed in an URMA, the area will be posted as a soil contamination area (SCA). All postings shall be in accordance with 10 CFR 835.603. The Buyer's Technical Representative shall be contacted prior to any soil disturbance.

5. For a description of known radiological contamination that may be present, and its locations, see Appendix A: Reconnaissance Level Characterization Report.

1.2 DEFINITIONS

A. The following definitions are in addition to those provided in 10 CFR 835.2

1. Administrative control level (ACL): A numerical dose constraint established at a level below the regulatory limits to administratively control and help reduce individual and collective dose in accordance with ALARA concepts.

2. Continuous air monitor (CAM): Instrument that continuously samples and measures the levels of airborne radioactive materials on a 'real-time' basis and has alarm capabilities at preset levels.

3. Radiological area: Any area within a controlled area defined in this section as a 'radiation area (RA),' 'high radiation area (HRA),' 'very high radiation area (VHRA),' 'contamination area (CA),' 'high contamination area (HCA),' or 'airborne radioactivity area (ARA)', as posted in accordance with 10 CFR 835.603.

4. Radiological buffer area (RBA): An intermediate area established to prevent the spread of radioactive contamination and to protect personnel from radiation exposure.

5. Radioactive material**:** Radioactive material includes any material, equipment or system component determined to be contaminated or suspected of being contaminated in excess of the Buyer's limits. Radioactive material also includes activated material, sealed and unsealed sources, and material that emits radiation.

6. Radioactive material area (RMA): Any area within a controlled area, accessible to individuals, in which items or containers of radioactive material exist and the total activity of radioactive material exceeds the applicable values provided in Appendix E of 10 CFR 835.

7. Radioactive material management area (RMMA): An area in which the potential exists for contamination due to the presence of unencapsulated or unconfined radioactive material or an area that is exposed to beams or other sources of particles (neutrons, protons, etc.) capable of causing activation. RMMAs are buildings, rooms, facilities, or areas where waste/excess chemicals or property is controlled as radioactive until proven otherwise.

8. Radiological control hold point: Cautionary step in a technical work document requiring the radiological control organization to perform some action or verification. The radiological control hold point requirements should be satisfactorily completed before the work is continued.

9. Radiological Work Permit (RWP): Permit that identifies radiological conditions, establishes worker protection and monitoring requirements, and contains specific approvals for radiological work activities. The Radiological Work Permit serves as an administrative process for planning and controlling radiological work and informing the worker of the radiological conditions. All access or work in radiological areas as defined above requires a RWP.

1.3 NON-EXEMPT OR LICENSED RADIOACTIVE SOURCES AND MATERIALS

A. The Subcontractor shall not bring on site, without express written consent and approval of the Buyer, any Non-exempt or licensed radioactive sources. This includes any and all radiography equipment, moisture density gauges, or other equipment that uses radioactive source materials.

B. The Subcontractor shall not remove any radioactive materials from the Mound Site to an off-site location without express written consent and approval of the Buyer.

1.4 RELATED SECTIONS

A. Section 01180 Respiratory Protection.

B. Section 01300 Submittals.

C. Section 01550 Waste Management.

1.5 REFERENCE STANDARDS

A. 10 CFR 835, Radiation Protection: Final Rule.

B. Mound Radiological Protection Plan (RPP).

1.6 SUBMITTALS

A. Submit for information, a list of all personnel who have received Rad Worker II training. Provide employee's full name, job title, title of course(s), training date, and training organization. Include a copy of the training certification(s).

B. The Subcontractor shall submit HEPA filter test certification. See Section 3.1.F.

1.7 NOTIFICATIONS

A. The Subcontractor shall provide a written request to the Buyer's Technical Representative at least 2 working days in advance for obtaining General Employee Radiological Training (GERT) or a Radiological Orientation. See sections 3.1 A and B.

B. The Subcontractor shall provide a written request to the Buyer's Technical Representative at least one week in advance to obtain radiological free release evaluations/surveys on equipment. See Section 3.1.C.

C. The Subcontractor shall provide a written request for the issuance of an RWP from the Buyer at least 7 working days before the scheduled work activity.

D. The Subcontractor shall provide a written notification to the Buyer at least two days in advance of any employee who will be terminating so that a exit bioassay or follow-up bioassay monitoring may be set up if required.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Buyer-Furnished Equipment

1. Thermoluminescent Dosimeters (TLD)

2. Personnel contamination equipment necessary to perform required personnel monitoring.

3. Radiological Instrumentation for gross alpha/beta/gamma/neutron detection and counting equipment for alpha/beta and gamma analysis for samples collected by the Buyer's Radiological Control Organization.

4. Radiological air sampling and monitoring equipment in support of RCT activities. Includes portable air samplers and portable continuous air monitors.

5. Contamination surveys and air sampling media (e.g. swipes and air sample filters).

6. Bioassay containers.

B. Buyer Services

1. The Buyer will provide the following services:

a. Internal and External Dosimetry Services, including bioassay sampling, external dosimetry, and dosimetry storage location

b. Radiological Control Technician Coverage

c. Air monitoring

d. Radiological surveys and monitoring

e. Radiological count room

f. Radiological Work Permits

g. Personnel exposure records

h. Soil sample-screening lab

i. Radiological Worker Training

j. Radiological Instrumentation Maintenance/Calibration

k. Environmental Count Lab

C. Subcontractor Furnished Equipment

1. Provide the Following Equipment:

a. Sufficient Personal Protective Equipment (PPE) for Subcontractor and Buyer personnel. The Subcontractor shall provide PPE for its personnel and for an average of 15 Buyer personnel per day. The Buyer will provide a listing of sizes for its personnel to the Subcontractor.

(1) The Buyer currently uses disposable type PPE due to the lack of an on-site laundry facility. The Subcontractor may choose to use either disposable or non-disposable PPE.

(2) If the Subcontractor chooses to use disposable PPE, the Buyer will provide a listing of currently used types for the following items:

Smocks - yellow paper (Durafab Comfort Guard 150)
Shoe covers - flat vinyl, yellow, 0.006 gauge top and 0.008 gauge embossed sole
Coveralls - splash resistant yellow paper or Tyvek with zipper closure, no hood
Hoods - yellow Tyvek with full head and shoulder coverage. Elastic face opening
Booties - vinyl boot with ties, 0.008 gauge
Surgeons gloves - non-latex
Rubber gloves - standard radiological, orange or yellow with trefoil marking
Cotton liners - standard ambidextrous

(3) If the Subcontractor chooses to use non-disposable PPE, the Subcontractor shall coordinate delivery, collection of used PPE, and transportation to and from a qualified Buyer approved radiological use laundry facility. Container/truck shipment receipt surveys are required for laundry.

(4) The Subcontractor is responsible for providing "modesty" clothing to be worn under PPE.

(5) Workers who choose to wear personal clothing or jewelry in radiological areas do so at the workers' risk. The Buyer will not reimburse workers for personal items worn inside radiological areas.

(6) PPE cannot be stored or warehoused in the building that is being decontaminated or demolished.

b. Respiratory protection equipment: see Section 1180 Respiratory Protection.

c. Vacuum cleaners equipped with DOP or equivalent tested HEPA filters.

d. As required, portable electric hand tools, equipped with DOP or equivalent tested HEPA filters, or used in conjunction with separate HEPA exhaust.

e. Portable DOP or equivalent tested HEPA exhausters, with a minimum of 800 cubic feet per minute (cfm) flowrate.

f. HEPA filters for items c, d and e above. HEPA filters shall provide an efficiency of not less than 99.97% when challenged with a 0.30-micrometer particle size aerosol.

g. Decontamination supplies such as rags, mops, buckets, window cleaner (or other suitable decontamination agent) and other material needed for decontamination of equipment, personnel, and facilities.

h. Yellow plastic bags, a minimum of .015 mils in thickness, of various sizes for radiological contaminated waste.

i. Janitorial supplies, as needed for support of the change rooms/restrooms in use.

j. Equipment and supplies to construct temporary containment structures or devices required by approved Work Packages, RWPs, and/or ALARA Reviews. The required equipment may consist of glovebags and/or perma-con type structures.

2. Change Facilities

a. See Section 01500 Facilities, Controls, and Project Boundaries.

PART 3 EXECUTION

3.1 PREPARATION

A. Radiological Worker Training

1. Personnel shall complete DOE Radiological Worker II training, consisting of a core academic module and a site specific practical factors module. Personnel shall pass examinations given after each module. See Section

1.6 Submittals. See Section 01800 Training and 01800 ATT I Training Matrix for further details regarding training.

2. The Subcontractor shall provide written notification of training request at least 7 working days in advance.

3. A waiver request for the core academic module may be submitted for personnel who provide proof of Department of Energy core Rad Worker II training which has been completed within the past two years. Personnel with this exemption will only have to complete the site-specific practical factors module and pass the practical examination.

4. There is no exemption for the site practical factors module.

B. Visitor Requirements

1. Personnel who enter areas posted as Controlled Areas shall meet the following requirements:

   a. For visits of duration 2 weeks or longer – Personnel must attend General Employee Radiological Training (GERT). Provide a written request for training at least 2 working days in advance. The Buyer will provide the training. Completion of GERT training allows for unescorted access into a Controlled Area. The training takes approximately one hour.

   b. For visits shorter than 2 weeks – Personnel may receive the Buyer's radiological orientation. Provide a written request for training 24 hours in advance. The Buyer will provide the orientation. Personnel who have this orientation may have escorted access to Controlled Areas. If personnel will be making multiple short-term visits over the period of the contract, it is required that they obtain GERT training.

2. Visitors with a demonstrated need to enter the following areas may be allowed access if such access is controlled with area-specific training (i.e., GERT or Radiological Orientation) and the use of radworker-qualified escorts in lieu of Rad Worker training:

   a. Radiological Buffer Areas

   b. Radiation Areas

   c. Contamination Areas

   d. Radioactive Material Areas

3. Prior to being granted access, visitors requesting entry to the above areas, or areas requiring internal monitoring, must complete prior radiological work history forms.

4. Visitors shall be prevented from entering Very High Radiation Areas. If personnel require access to High Radiation, High Contamination and Airborne Radioactivity Areas, they shall complete Radiological Worker II training as described above.

C. Equipment Surveys

1. The Buyer will survey equipment upon arrival at the site to ensure the equipment meets the standards for radioactivity before it is brought into the work area. If items are found to be contaminated, they shall be decontaminated by the Subcontractor to site acceptable levels or removed from Site at Buyer's discretion and at Subcontractor's expense. Preliminary decontamination as applicable to remove existing radioactive contamination shall be performed off-site at the Subcontractor's expense prior to introduction on-site.

2. Tools and equipment which have been used in a radiological area, including power equipment and temporary scaffolding, shall remain within the radiological area until released or transferred to another radiological area, by the Buyer. Power tools or equipment with inaccessible internal surfaces, which cannot be fully surveyed, and used in radiological areas will not be free-released for use outside of radiological areas without Buyer's approval. Tools and equipment used in radiological areas may be transferred to other radiological areas within the building. Contaminated tools and equipment shall be bagged or external surfaces covered or decontaminated by the Subcontractor for transit through the RBA to other radiological areas.

3. Free-release surveys shall be scheduled with the Buyer at least one week in advance. The Buyer will determine if the tools or equipment allow for 100% survey or if free release can be achieved based on a limited scope survey.

4. Buyer's radiological personnel shall review all survey results prior to authorizing free release of material.

D. Internal and External Dosimetry

1. Baseline bioassays (urine and/or fecal analysis) samples may be required of Subcontractor employees prior to starting work in radiological areas. The Buyer will determine the need for such samples.

2. The Subcontractor shall complete a request for prior exposure of each radiological worker prior to performing any work in radiological areas. The completed request for prior exposure shall be provided to the Buyer.

3. Nasal smears may be collected per direction of the Buyer.

E. Radiological Work Permit (RWP)

1. An RWP is required for any entry or work in a radiological area. No work shall take place in a radiological area until the Buyer's radiological personnel issues the RWP.

2. The Subcontractor shall formally request the issuance of an RWP from the Buyer in writing at least 7 working days before the scheduled work activity. The Buyer's radiological personnel will provide a Radiological Work Permit (RWP) for work activities performed in radiological areas (CA, HCA, ARA, RA, HRA, and SCA). The formal request shall contain at a minimum:

   a. scope of work,

   b. estimated number of personnel involved,

   c. location of expected work,

   d. estimated duration of task, and

   e. estimated start date

3. PPE shall be worn as specified on the RWP.

F. Equipment Testing

1. Equipment having a HEPA filter shall be tested by the Subcontractor prior to use on-site. HEPA filter replacement requires retesting of the equipment. All HEPA filtered equipment shall be tested to meet the requirements of ASTM D-2986 every two years of use. Re-testing is also required on equipment after maintenance has been performed or if the equipment has been subjected to any activity that may affect the filter efficiency and/or seals.

a. Certificates of Conformance for the fabrication, inspection, and testing of Nuclear HEPA filters shall be submitted to the Buyer prior to approval for installation of the filters.

b. A qualified individual or vendor shall conduct the in-line filter leak test. The qualified individual or vendor must have attended the Nuclear Consulting Services, Inc. (NUCON) in-place filter testing workshop or equivalent. The pertinent certification shall be submitted to the Buyer prior to approval to test performance.

3.2 DECONTAMINATION AND DEMOLITION

A. Radiological Buffer Area

1. No eating, drinking, use of tobacco, applying cosmetics, or chewing gum is allowed.

2. No RWP or protective clothing is required for work in these areas; however, RCT coverage may be required to verify that contamination is not present (such as in overhead areas).

B. Radiological Area (Contamination Area, High Contamination Area, Airborne Radioactivity Area

1. An RWP (which prescribes appropriate levels of PPE) is required for entry into these areas.

2. Prior to start of work, review potential radiological hazards with all personnel who must work in the radiological area.

3. The Buyer's radiological personnel will maintain a log of all personnel entering a radiological area and additionally, if the area is controlled by an RWP, enter the entrance and exit time each time a person enters or leaves the area.

4. No eating, drinking, applying cosmetics, use of tobacco, or chewing gum is allowed.

5. Enter only to perform required work within the bounds of the RWP and job plan.

6. Personnel monitoring is required upon exit.

7. PPE as required on the RWP.

8. Typical dress-out requirements:

   a. Coveralls

   b. Shoe covers

   c. Booties

   d. Work boots

   e. Cotton liners

   f. Surgeon's gloves or Rubber gloves

   g. Hood

   h. Respiratory protection for certain work activities in ARAs

   i. For non-hands on tours and inspections in CA's, a smock, shoecovers, and gloves may be sufficient, per RWP

   j. For HCA's, a double set of a. through g. above is normally required.

C. Containment of Dust and Debris

1. The following are requirements for all contaminated work areas.

   a. Use of engineering controls (e.g. glovebags, water sprinklers, etc. as appropriate) should be used to the maximum practical extent.

   b. Portable hand tools used to drill, cut, or otherwise disturb contaminated materials must be equipped with a HEPA-filtered exhaust ventilation system or provided with a means for localized exhaust (within 1-2 feet) of the immediate work area as required by the Buyer.

   c. Implement dust-suppression techniques. Dry sweeping, using compressed air for cleaning, or other dust-creating activities are prohibited.

   d. HEPA filters and respirator cartridges shall be discarded as contaminated waste.

   e. Containment devices shall be installed by the Subcontractor and inspected/reviewed by the Buyer's radiological personnel after installation, prior to use and periodically during use.

D. Personnel Monitoring

1. Each worker exiting the radiological area into a less restrictive area shall be monitored. Each worker exiting the RBA into a less restrictive area shall be self-monitored. Monitoring requirements will be provided during the Radiation Worker Training program. Follow posted instructions and utilize the equipment provided.

    a. If whole body frisk is required, estimated time is 4 min.

    b. If hand and foot frisk is required, estimated time is 2 min.

2. Contamination is not expected to be found during monitoring. If contamination is found, remain at the monitoring station and notify the Buyer. Decontamination will be performed by the Buyer's radiological personnel in a manner commensurate with the type and level of contamination, and must be completed before the worker leaves the Mound site.

3. Personnel intake-monitoring requirements are based on the radiological hazards identified for generation of the RWP.

E. Respiratory Protection

1. Respiratory protection is required for work in airborne radioactivity areas.

2. Respiratory protection may be required for activities that disturb or damage existing surfaces such as drilling, cutting, or demolition which may result in creation of an ARA. The Subcontractor shall provide respiratory protection in accordance to Section 01180 Respiratory Protection. The Buyer, through the RWP document, will determine when and what type respiratory protection for radiological areas is required.

F. Waste Management

1. Waste Disposal: Dispose of radiologically contaminated waste in accordance with Section 01550.

    a. If waste boxes cannot be located within the radiological area, wrap or bag wastes before moving it from the radiological area to the boxes.

    b. Authorization is required for movement of any radiological waste outside of a radiological area by the Buyer.

2. In an effort to minimize waste, remove packaging to the maximum extent possible prior to transporting uncontaminated equipment and materials into radiological buffer areas (RBA) and radiological areas.

3.3 FIELD QUALITY CONTROL

A. Personnel Exposure Records

1. The Buyer will maintain personnel exposure records for all employees. The Buyer will supply the personnel exposure records for this work to the Subcontractor, and it is the responsibility of the Subcontractor to provide the information to employees.

END OF SECTION

SECTION 01180

RESPIRATORY PROTECTION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Respiratory protection requirements for construction personnel.

1. The Subcontractor shall submit for approval a Respiratory Protection Program in accordance with ANSI Z88.2-1992, "Practices for Respiratory Protection"; and OSHA Regulations for Construction, Standard 29 CFR 1926.103 and Standard 29 CFR 1910.134.

   The RPP shall include:

   a. A Hazards Evaluation to estimating workplace exposure for selecting appropriate respirators.

   b. The Subcontractor shall include a procedure for regularly evaluating the effectiveness of their respiratory protection program.

   c. The Subcontractor shall conduct evaluations of the workplace to ensure the their respiratory protection program is adequate.

2. Limit exposure to toxic and hazardous substances to the permissible exposure limits of 29 CFR 1926, Subpart Z.

3. Where feasible, administrative and engineering controls are required to be used before the option of respiratory protection is required. When engineering controls are not used, provide documentation listing reasons why they are not feasible.

4. As a minimum, respiratory protection is required during the following work/operations:

   a. Abrasive blasting.

   b. Work on surfaces with the potential to generate airborne asbestos; lead and/or lead particulate; or entry into posted asbestos, or lead work areas.

c. Work with substances or on surfaces with the potential to generate respirable man-made fibers.

d. Work on radiologically contaminated or activated surfaces with the potential to generate airborne radioactivity or entry into posted airborne radioactivity areas.

e. Work that creates silica dust and man-made fibers that are known or suspected to be a health hazard.

f. Work in areas or with substances with the potential to exceed PELs/TLVs.

5. Waiver for Respiratory Protection

a. Use of respiratory protection may be waived by the Buyer upon receipt of a written recommendation, based on workplace assessment, by a Certified Industrial Hygienist or Professional Industrial Hygienist.

1.2 DEFINITIONS

A. Single-use of respirator: The time period starting at entry into the hazardous work area until the respirator face-to-face piece seal is broken. Essentially one donning and doffing cycle.

B. Certified Industrial Hygienist or Professional Industrial Hygienist: Individual certified in the practice of industrial hygiene by the American Board of Industrial Hygiene or a professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards.

C. Disposable Respirator: A respirator for which maintenance is not intended; has a filter element which is not an inseparable part of the respirator; and that is designed to be discarded after excessive resistance, sorbent exhaustion, physical damage, or end-of-service-life renders it unsuitable for use. Examples of this type of respirator are a disposable half-face and full-face respirator or a disposable escape-only self-contained breathing apparatus.

D. Engineering Controls: Methods for controlling dispersal of airborne contamination at point of origin such as wetting, vacuuming, enclosures, filters, and exhaust ventilation.

E. Administrative Controls: Methods of controlling employee exposures to contaminants by job rotation, work assignment, or time periods away from the

contaminant.

1.3 REFERENCES

A. ANSI Z88.2, 1992, Practices for Respiratory Protection.

B. OSHA Regulations for Construction, Standard 29 CFR 1926.103, Respiratory Protection (current issue).

C. ANSI/CGA G7.1, Commodity Specification for Air.

D. National Institute of Occupational Safety and Health (NIOSH)

E. Section 01150 Work in Radiologically Contaminated Areas

1.4 QUALITY ASSURANCE

A. Subcontractor shall maintain the following required records:

1. Maintain records in accordance with ANSI Z88.2 and 29 CFR 1926.103.

2. These records shall include, but are not limited to, the items below:

a. Respirator Inspection - inspection dates, findings, and remedial actions for respirators maintained for emergency or rescue use.

b. Training - type of training received, type of respirator equipment, manufacturer of respirator, names of persons trained, and date training occurred.

c. Respirator Fit Testing - type of respirator used; specific make, model, and size of respirator tested; NIOSH approval number; name of person tested; name of test operator and qualifications; date of test; and results of respirator fit test (protection factor and fit factor).

d. Medical Approval - documented opinion by health services that a person is physiologically and psychologically able to wear respiratory protective devices while performing the job.

e. Program Appraisal - the findings, outcomes, and actions resulting from the annual Respiratory Protection Program evaluation.

f. Program Surveillance - the findings, outcomes, and actions resulting from spot checks of operations where respirators are in use.

1.5 SUBMITTALS

A. Subcontractor shall submit the following for approval.

1. Respirator Protection Program

2. Waiver not to use respirators.

3. Request not to use engineering controls.

B. Subcontractor shall submit the following for information.

1. Copy of fit-test results/cards.

2. Records required under Paragraph 1.4.

PART 2 PRODUCTS

2.1 MATERIAL

A. Subcontractor shall provide respirators and cartridges that are NIOSH/MSHA approved (such as MSA or Survivair-type). Provide additional respiratory protection equipment, including breathing air, when using atmosphere supplying respiratory protection. The Subcontractor shall provide respirators and associated filter cartridges for the use of the Buyer.

Subcontractor shall provide the following types of respirators to the Buyer as needed: MSA full-face (including powered air-purifying respirators and supplied-air respirators), MSA half-face, North full-face and North half-face. The Buyer will provide documentation for Buyer's personnel such as training, fit tests, and medical evaluations as required under 29 CFR 1926.103 to the Subcontractor.

B. Subcontractor shall provide compressed breathing air, if required. Submit data demonstrating the compressed breathing air quality supplied to the air respiratory protection systems meets the ANSI/CGA G7.1 requirements for Grade D breathing air.

C. Air purifying respirators (APR) shall not be worn in oxygen deficient or immediately dangerous to life or health (IDLH) environments.

PART 3 EXECUTION

3.1 INSPECTION

A. Inspect respirator before use and during cleaning operations to ensure that it is working properly.

B. Inspect respirators stored for emergency or rescue use monthly. The respirator inspections shall be documented and certified

3.2 PREPARATION

A. Subcontractor shall require a medical evaluation:

1. Before an employee is issued a respirator, a physician's approval is required. This approval shall verify the employee will be able to function normally wearing a respirator and the employee's safety and health will not be impaired. The medical evaluation and physician's approval shall be in accordance with the requirements of ANSI Z88.2 and 29 CFR 1926.103 and shall be updated annually.

B. Training

1. Before an employee is issued a respirator, the employee shall complete training that conforms to ANSI Z88.2 and 29 CFR 1926.103. Update training annually, except where a particular substance requires more frequent training.

C. Fit Test

1. Before an employee is issued a respirator and within 60 days of the training and medical examination, the employee shall receive a quantitative fit test in accordance with ANSI Z88.2 and 29 CFR 1926.103. Assigned protection factors shall be as specified by NIOSH and/or OSHA, whichever is more stringent. Perform fit testing for initial fitting and annually afterwards except where a particular substance requires more frequent fit testing.

3.3 APPLICATION

A. Respirator Information

1. Single-use of respirators is required in the following situation:

a. In radiological areas involving the abrading of fixed surface contamination, airborne radioactivity areas where the air concentration exceeds the derived air concentration (DAC), or in other areas where removable surface contamination has the potential to be re-suspended during normal operations and no feasible method

of checking for the presence of such contamination exists; and

b. In non-radiological areas where surface contamination of the respirator may occur and no feasible method of checking for the presence of such contamination exists.

2. The Subcontractor's Respiratory Protection Program Administrator may approve the reuse of respirators, except as noted, provided good work practices are followed that ensure the unit remains both serviceable and uncontaminated. Upon removal, the respirator wearer shall place the respirator in a clean plastic bag and store it in a secure location accessible only to the wearer. Appropriate materials for cleaning and disinfecting the respirator shall be provided to the wearer when the respirator is first issued, in accordance with 29 CFR 1926.103 and 29 CFR 1910.134.

3. Quarter-mask respirators and disposable dust masks are **prohibited** for any operations where respiratory protection is recommended.

4. Subcontractor is not required to include in their respiratory protection program those employees whose only use of respirators involve voluntary use of filtering face pieces (Dust Masks).

5. Upgrades in respiratory protection shall be coordinated with the Buyer.

B. General Requirements

1. Modifications to the respirator or its parts are prohibited.

2. The Subcontractor's supervisor shall monitor use of the respirator to ensure they are properly worn.

The Subcontractor shall implement a respirator hygiene program in compliance with 29 CFR 1926.103, which is capable of addressing contamination issues as they arise. The Subcontractor's program shall include the cleaning, sanitation, repair, cartridge change schedule, and inspection of all respirators issued to and used by the Buyer. Should the Subcontractor's program necessitate the shipping of respirators off of the Buyer's site, the Subcontractor shall comply with all applicable Department of Transportation (DOT) regulations concerning shipment of contaminated materials.

3.4 FIELD QUALITY CONTROL

A. The Buyer shall perform periodic surveillance of the Subcontractor's respiratory protection program and work areas to ensure respirator effectiveness and

compliance with this section.

END OF SECTION

SECTION 01190 - ATTACHMENT I

ENVIRONMENTAL COMPLIANCE

NESHAPs Requirements for WD Project

A. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed an effective dose equivalent (EDE) of 1.0 mrem/year for Buildings WD, 23, and ATS. The present radionuclide inventory for the WD Facility is estimated to be 0.3 Ci. This inventory would provide an EDE to the public (Building 87) of 0.5 mrem/year.

B. The EPA does not control emissions to the public if the dose rate is less than 0.1 mrem/year. The estimated radionuclide project inventory to achieve an EDE less than 0.1 mrem/year is 0.06 Ci. (For dose calculations: The distance to the nearest inhabited public facility, Building 87, is 165 meters.

C. The Buyer will perform a NESHAPs emissions standards assessment for Building WD, 23, and ATS dismantlement and demolition activities. Since the current assessment for WD exceeds the NESHAPs emissions standard for release to the public, the Subcontractor shall perform area decontamination to bring the levels below the approved standard. Otherwise, per NESHAPs (40 CFR 61 Subpart H), the Buyer can submit a request to DOE for approval of the Subcontractor's work package from the U.S. EPA to proceed with the project based on the results of the above NESHAPs assessment. U.S. EPA approval would be part of the 6-month lead-time for work package approval process.

References:

A. The following references are supplemental to the Section 01190 Environmental Compliance paragraph 1.5 References.

1. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23, and 125 (ATS) Removal Action, May 2002

SECTION 01190

ENVIRONMENTAL COMPLIANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Subcontractor actions, records, and submittals necessary for the Buyer to meet environmental compliance responsibilities, including:

1. Subcontractor actions that must be completed to insure that the Buyer's monitoring and reporting functions can be accomplished.

2. Requirements for the Subcontractor to perform work activities and achieve environmental emissions release requirements as mandated by, federal, state, and local laws and regulations and as verified by the Buyer.

3. Subcontractor records and record keeping requirements to document environmental cleanup related activities including training and reporting.

1.2 RELATED SECTIONS

A. Section 01130 Asbestos

B. Section 01210 Facility Surveillance & Maintenance

C. Section 01300 Submittals

D. Section 01400 Quality Assurance

E. Section 01460 Integrated Work Control

F. Section 01500 Facilities, Controls, and Project Boundaries

G. Section 01550 Waste Management

H. Section 01900 Utility Isolation and Removal

I. Section 01915 Electrical Equipment Removal

J. Section 01920 Fire Protection/Suppression Systems

K. Section 01925 Secondary Ventilation Systems Demolition

L. Section 16000 Electrical

M. Section 01800 Training

1.3 ENVIRONMENTAL COMPLIANCE PROFILE

As part of the review of Subcontractor-generated Work Packages, the Buyer shall generate an Environmental Compliance Profile (ECP) for each Work Package. ECP's are prepared by the Buyer to document the status of key environmental compliance areas of specific project activities. The Subcontractor shall provide data and information to allow completion of ECPs by the Buyer, and to display an understanding of environmental concerns and requirements, and the resolution or mitigation thereof.

A. Preparation of an ECP considers the following key elements:

1. Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) [40 CFR]

2. Permits to Install (PTIs) and Permit to Operate (PTOs) [OAC 3745-31 and -35]

3. National Emission Standards for Emissions of Radionuclides from DOE Facilities [40 CFR 61 Subpart H]

4. National Pollutant Discharge Elimination System (NPDES) Permit [OAC 3435-33]

5. National Environmental Policy Act (NEPA) [10 CFR 1021]

6. Asbestos Emission Control [OAC 3745-20]

7. Protection of Historic and Cultural Properties [36 CFR 800]

8. Floodplain / Wetland Review [10 CFR 1022] and Wetland Anti-degradation [OAC 3745-1-54]

9. Storm Water Pollution Prevention [NPDES Permit No. 1IO00005*HD]

10. Safe Drinking Water Act (SDWA) [OAC 3745-81, -82, -83, -85, and -95]

B. Any one or more of the key elements may be applicable to a work package, depending upon the work scope. The Subcontractor shall determine which

elements are applicable and incorporate appropriate data and information into the Work Package submittal.

1.4 SUBMITTALS

A. Submittal requirements shall be in accordance with the general requirements of subcontract specification Section 01300 Submittals.

B. Work Package submittals shall also be in accordance with Section 01460 Integrated Work Control. All information required for accomplishment of Environmental Compliance Profiles shall be submitted to the Buyer as part of the Work Package. The Subcontractor shall include pertinent and applicable data and information from the list of submittals presented in paragraphs C and D below, as an integral part of the Work Package submittal.

C. Submit the following for approval:

1. Fugitive Emissions Control Plan
2. Spill Prevention and Control Plan
3. Erosion Control Plan
4. Utilities Isolation Plan
5. Liquid waste disposal to sanitary or storm sewers, waterways, or drainage ditches.
6. Notification to RAPCA of asbestos removal completion.
7. Exhaust Stack Monitoring Backup Plan

D. Submit the following for information:

1. A copy of the "Ohio Environmental Protection Agency Notification of Demolition and Renovation" document as submitted to the Regional Air Pollution Control Agency (RAPCA).
2. Advance copy of RAPCA follow-up notifications as required.
3. List of Ozone Depleting Substances
4. Asbestos Inspection Reports
5. Radionuclide inventories.

6. ODS recycling and recovery equipment certifications.

7. 40 CFR 82, Part F. compliance evidence.

8. Refrigeration technicians certifications.

9. Notice of Intent to stop exhaust stack monitoring

1.5 REFERENCES

A. Federal Facilities Agreement under CERCLA Section 120, United States Environmental Protection Agency Region V and the State of Ohio, signed July 15, 1993 (29 CFR 1910.120)

B. Work Plan For Environmental Restoration of the DOE Mound Site, The Mound 2000 Approach, February 1999, Final, Revision 0

C. 40 CFR 61, Subpart H, National Emission Standards for Emission of Radionuclides Other Than Radon from Department of Energy Facilities

D. 40 CFR 61 Subpart M, National Emission Standard for Asbestos

E. 40 CFR 82 Subpart F, Ozone Depleting Substance (ODS) Management

F. 40 CFR 300, National Oil and Hazardous Substances Pollution Contingency Plan

G. 40 CFR 302, Designation, Reportable Quantities, and Notification

H. DOE N441-1, Radiation Protection of the Public and the Environment

I. DOE ORDER 5400.1, General Environmental Protection Program

J. DOE ORDER 5400.5, Radiation Protection of the Public and the Environment

K. OAC 3745-17-08, Restriction of Emission of Fugitive Dust

L. OAC 3745-20, Asbestos Emission Control

M. OPA980099, (Plant Site) Storm Water Pollution Prevention Plan

N. Montgomery County Hazardous Air Pollution Control Regulation 150

O. DOE NPDES Permit 1IO00005*HD

PART 2 PRODUCTS

2.1 MATERIALS - NOT USED

PART 3 EXECUTION

3.1 ASBESTOS REMOVAL, BUILDING DEMOLITIONS, RAPCA NOTIFICATIONS

A. Building demolitions (whether involving asbestos or not) and asbestos removal operations are subject to EPA's NESHAP regulation. Within Ohio, Federal EPA regulatory authority has been delegated to the Ohio EPA. For the Mound Plant, the requirements are administered by the Regional Air Pollution Control Agency (RAPCA) of Montgomery County on behalf of the Ohio EPA. Friable asbestos materials and all other asbestos materials regulated by the EPA (Regulated Asbestos-Containing Material or RACM) must be removed from a facility before any wrecking or dismantling that would break up or disturb the materials occurs. The Subcontractor shall accomplish this removal.

B. Notification of building demolitions and asbestos removal operations must be made to RAPCA, even when asbestos is not present. Notification is required at least ten (10) business days before the commencement of the activity. Among other information, notifications must list all friable and non-friable asbestos material to be removed and all non-friable asbestos material to be left in place during demolition (i.e., floor tile and asphalt roofing) in accordance with EPA requirements. Written notification is required to be made on the form prescribed by the EPA ("Ohio Environmental Protection Agency Notification of Demolition and Renovation", revised 11/12/97 or later). The Subcontractor shall provide an Ohio Department of Health Certified Asbestos Hazard Evaluation Specialist to affirm by signature in Section VI of the form, that an asbestos inspection has been performed in accordance with NESHAP requirements.

C. Following submission of the original notification, the Subcontractor must verbally notify RAPCA immediately (i.e., same business day or within 24 hours) of any increase in the quantity of asbestos to be removed, any deviation in the removal or demolition schedule, any deviation in the removal methods used, any change in the licensed asbestos hazard abatement contractor used, or any change in the name or location of the waste disposal site. The Subcontractor must submit an amended notification within two (2) business days following verbal notification of the prescribed change. An Asbestos Hazard Evaluation Specialist certification is not needed for revised notification if the quantity of asbestos has not changed.

D. Notification to RAPCA of asbestos removal completion requires prior

WRITTEN APPROVAL of the Buyer before issuance to RAPCA. The Subcontractor shall provide to the Buyer an advance copy of all other written or verbal notifications to RAPCA.

3.2 WASTE MANAGEMENT

A. CERCLA/RCRA

1. Substantive RCRA requirements are implemented through the CERCLA program at Mound. These requirements are detailed in a table of Applicable, or Relevant and Appropriate Requirements (ARARs table), which is an element of the Action Memorandum for the removal action. The Subcontractor will be required to comply with the substantive requirements for packaging and storage of RCRA wastes, as detailed in the ARARs table.

B. LIQUID WASTE

1. The Subcontractor **shall not** allow hazardous liquids (including, but not limited to; gasoline, diesel fuel, lubricating oil, antifreeze, chlorine mixtures, and cleaning chemicals) to enter the sanitary or storm sewer systems, waterways, drainage ditches, or the ground.

2. The Subcontractor **shall not** dispose of liquid waste in sanitary or storm system sewers or waterways or drainage ditches without written approval from the Buyer.

C. WASTE MINIMIZATION

1. The Subcontractor shall take appropriate and necessary precautions and actions to prevent cross-contamination of areas, soils, wastes, materials and equipment.

2. Planned measures to minimize cross contaminating shall be incorporated by the Subcontractor into Work Package submittals.

3.5 NESHAPs

A. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U.S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed an effective dose equivalent (EDE) of 1.0 mrem/year for buildings demolition and soil remediation activities. Activities with the potential to result in an (EDE) > 0.1 mrem/year to a member of the public requires U.S. EPA approval. (Dose

calculations are computed on the radionuclide inventory, the distance to the nearest inhabited facility, and prevailing wind direction.)

Unless otherwise provided by the Buyer, the Subcontractor shall calculate and submit to the Buyer, a radionuclide inventory for all equipment and structure demolitions, including slab, foundation, and associated soil removal. With this information, the Buyer shall perform a NESHAPs emissions standards assessment for building dismantlement and demolition activities. Since this assessment could exceed the NESHAPs emissions standard for release to the public, the Subcontractor may have to perform area decontamination to bring the levels below the approved standard.

Otherwise, per NESHAPs (40 CFR 61 Subpart H), the Buyer can submit a request to DOE for approval of the Subcontractor's work package from the U.S. EPA to proceed with the project based on the results of the above NESHAPs assessment. If needed, U.S. EPA approval is included as part of the 6-month lead-time for work package approval.

3.6 PTIS/PTOS AND (FUGITIVE) AIR EMISSIONS

A. State of Ohio Permits to Install (PTI) or Permits to Operate (PTO) are not required for equipment removals, structure demolitions, and below grade removals.

B. The Subcontractor shall submit to the Buyer for review, a Fugitive Emissions Control Plan that specifies measures to prevent or control visible emissions. The Fugitive Emissions Control Plan and Work Packages shall specify dust control practices for all activities, which generate fugitive dust.

C. The Subcontractor shall plan, develop, and use necessary control measures to prevent fugitive dust from becoming airborne, particularly from bulk waste staging and transfer areas. Visual particulate emissions from any fugitive dust source shall not exceed 20% opacity as a three-minute average. At Mound, the goal of fugitive dust control is no visible emissions.

D. The Subcontractor shall designate project personnel who are responsible for employing dust controls methods and monitoring their effectiveness.

E. The Subcontractor shall promptly notify the Buyer and update the Fugitive Emissions Control Plan if emissions not previously anticipated and addressed in the Plan are to occur. The Buyer shall review project Work Packages to ensure that dust control is adequately addressed and provide oversight to ensure that such practices are implemented and effective.

3.7 NPDES PERMIT

A. The Subcontractor shall ensure that liquid effluent that results from equipment removals, structure demolitions, and below grade removals complies with the NPDES permit.

B. The Subcontractor must report to the Buyer any anticipated problems with permit compliance.

C. All underground sanitary and storm lines are to be plugged / abandoned to prevent any potentially contaminated storm water or suspended solids from discharging to the waste water treatment plant (WWTP) or to the environment. Locations to be plugged/abandoned shall be identified and incorporated into the Work Package scope of work as appropriate by the subcontractor.

3.8 STORM WATER POLLUTION PREVENTION

A. The Subcontractor shall submit an Erosion Control Plan as required by the Plant site's NPDES permit for review by the Buyer. The Buyer shall review project Work Packages to ensure that erosion control is adequately addressed and provide oversight to ensure that such controls are implemented and effective.

B. The Erosion Control Plan shall specify erosion control practices for all project activities, which could affect site storm water effluent (runoff). The Subcontractor shall conduct work operations such as to minimize the potential for erosion of soils, and to prevent the entry of construction debris, soils, silt, or other deleterious materials into surface streams or the storm sewer system.

C. The Erosion Control Plan shall specify the Subcontractor's plans and procedures to prevent or control soil erosion, and to ensure that such controls are properly maintained and are effective. The Subcontractor shall plan, develop, and employ storm water controls to prevent or minimize soil erosion in areas of soil disturbances.

D. The Subcontractor must ensure that storm water controls are employed to prevent run-on and run-off from bulk waste staging and transfer areas. The Subcontractor shall control the grading in the vicinity of all work so that the surface of the ground shall be properly sloped to minimize water from running into or off of excavated areas.

E. The Subcontractor shall designate a point of contact (POC) at the on-site project office, who is responsible for erosion control activities. The POC may have collateral duties. The POC shall have the authority to act on behalf of the Subcontractor to engage erosion control measures. The POC shall accompany the BTR on inspections for erosion control compliance. The POC shall be someone who is knowledgeable, experienced, or trained in the area of

successful erosion control compliance.

F. Ponded water shall be tested before release. Subcontractor shall request testing through the BTR. The discharge shall comply with the NPDES permit and can not be greater than one-half the DOE derived concentration guideline (DCG) for the radionuclides. The Subcontractor shall submit the analysis results and volume released, in gallons, to the Buyer.

3.9 SPILL PREVENTION AND CONTROL

A. The Subcontractor shall submit a Spill Prevention and Control Plan for review by the Buyer.

B. The Spill Prevention and Control Plan shall specify preventive measures for all Subcontractor activities involving hazardous materials or oils on site. The Subcontractor shall plan, develop, and employ spill prevention measures, controls and work practices, to prevent the occurrence of spills of hazardous (chemical or radiological) substances, liquids or oils.

C. The Subcontractor shall plan, develop, and employ countermeasures in the event of a reportable or non-reportable spill or release. The Subcontractor shall immediately report to the Buyer any spill or release of hazardous substances, liquids or oils.

D. The Subcontractor shall notify the Buyer and update the Spill Prevention and Control Plan if hazardous materials or oils, not previously covered in the Plan, are expected to be stored or used at the site.

E. The Buyer shall review project Work Packages to ensure that spill prevention and control is adequately addressed and provide oversight to ensure that such preventive measures are implemented and effective.

F. The Subcontractor shall provide and maintain spill response and communications equipment as appropriate to the Spill Prevention and Control Plan. A list of the response and communications equipment shall be submitted to the Buyer.

G. The Subcontractor shall designate a point of contact (POC) at the on-site project office, who is responsible for spill prevention and control activities. Collateral duties are acceptable. The POC shall have the authority to act on behalf of the Subcontractor to require or mandate spill prevention and control measures.

3.10 POTABLE WATER

A. Prior to demolition, the potable water supply to buildings must be turned off

and capped at the water main to protect the integrity of the water supply to that portion of the plant site. Buildings close to the project must be posted if their potable water supply is shut off while capping the water supply main.

B. If the ground must be excavated to cap-off the water line, then all buildings that are affected shall be monitored for total coliform bacteria.

C. The Subcontractor shall disinfect in accordance with AWWA Standard C651 all fittings and open pipes.

3.11 OZONE DEPLETING SUBSTANCES (ODS)

A. Ozone Depleting Substances include CFCs and HCFCs. Per Section 608 of the Clean Air Act, and pursuant to 40 CFR 82, Subpart F, during the servicing and disposal of refrigeration and air conditioning equipment, recycling of ODSs must be maximized. No one may knowingly vent ODSs used as refrigerants into the atmosphere while maintaining, servicing, repairing or disposing of air conditioning or refrigeration equipment, except for small releases emitted during normal operations of the equipment, or releases resulting from purging or hose disconnection. The Subcontractor must report non-compliance to the Buyer.

B. The Subcontractor must certify to the Buyer that recycling and recovery equipment has been acquired and is available.

C. The Subcontractor must certify to the Buyer that recycling and recovery equipment have been certified by an approved testing organization.

D. The Subcontractor must provide to the Buyer evidence of compliance with the requirements of 40 CFR 82, Part F.

E. Subcontractor technicians, who dispose of, service, or repair, refrigeration and air conditioning equipment, must be certified. Copies of the certification are required to be submitted to the Buyer prior to start of work on any of the refrigeration and air conditioning systems and equipment.

3.12 VENTILATION/EXHAUST SYSTEMS

A. Modifications to building ventilation/exhaust systems, including any increase or reduction in exhaust flow rate or amount of HEPA filtration, or changes in the configuration of building ventilation, may be subject to approval from USEPA based on NESHAPs requirements.

B. The Subcontractor shall provide to the Buyer plans and drawings outlining specifications of proposed modifications to the building HEPA filter banks or

building ventilation configuration.

C. Following any modifications to building ventilation/exhaust system affecting the building exhaust flow rate, the Subcontractor shall calculate and provide to the Buyer the exhaust flow rate from the building or a reasonable engineering estimate thereof.

D. The Subcontractor shall calculate and provide to the Buyer the most recent radionuclide inventories for subject activities affecting ventilation/exhaust systems in accordance with the requirements of Section 3.6. If decontamination has not been completed, the Subcontractor shall provide a reasonable engineering estimate of the inventory.

E. Unless otherwise specified by the Buyer in writing, designated building effluent stacks shall be maintained in an operational condition by the Subcontractor at all time until written approval is given by the Buyer to shut the system down. All planned outages require Buyer approval. The subcontractor shall provide a backup power source of sufficient capacity to operate the monitoring and air handling equipment in the event of planned or unplanned power outages. The Subcontractor shall prepare and submit a plan that addresses the operation and maintenance of the backup system to include the location of the power source, fueling requirements, hookup and wiring, off-hours coverage, and building evacuation plan.

During an outage, planned or unplanned, that the air handling and monitoring equipment is not operational, the building shall be vacated by all personnel until the operational condition has been restored.

The effluent stream from building exhaust stacks is required to be sampled continuously in accordance with 40 CFR 61.93. The Buyer will perform all required sampling and data collection.

An advanced notice of the intent to stop stack monitoring for demolition of the stack needs to be submitted to the Buyer no less than 45 days before projected start date. The notice of intent to stop exhaust stack monitoring shall be submitted by the Buyer to Region 5 for approval no later than 30 days before anticipated demolition activities.

3.13 TRAINING

A. The Subcontractor shall insure that personnel are trained in requirements of the approved Fugitive Emissions Control Plan, the Spill Prevention and Control Plans, and the Erosion Control Plan.

END OF SECTION

SECTION 01205

AUTHORIZATION BASIS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The Authorization Basis for Buildings WD and the Alpha Treatment System (ATS), and the Basis of Interim Operations for Building 23. It will outline the requirements for conducting work planning, demolition, and environmental restoration within the established safety envelope.

B. Buildings WD, 23, ATS, and their boundary areas are considered as individual unit for the purposes of Hazard Categorization. Buildings WD and ATS are categorized as Radiological Facilities operating under Auditable Safety Analysis (ASA). Building 23 is authorized to perform waste storage and handling operations under a resource Conservation and Recovery Act (RCRA), Part B Permit approved by the Ohio Hazardous Waste Facility Board under a Basis for Interim Operation (BIO).

NOTE: Building 23 will be downgraded by the Buyer prior to being turned over to the Subcontractor for decontamination and demolition.

C. The Authorization Basis for Buildings WD and ATS, and their surrounding areas includes MD-10481, Building WD Auditable Safety Analysis and MD-10506, Building ATS Auditable Safety Analysis (See Appendix D and I). The Auditable Safety Analysis (ASA) analyzes hazards present in the facilities, hazards associated with selected facility operations, and specifies controls to reduce the frequency or mitigate hazards associated with identified and analyzed accidents. The Administrative Manual formalizes the processes to maintain the facilities within their approved safety envelope.

D. The Basis for Interim Operation for Building 23 and its surrounding areas includes MD-10484, Building 23 Mixed Waste Storage Facility Basis for interim Operation. (See Appendix G, The Basis for Interim Operation (BIO) serves as the basis upon which the U.S. Department of Energy has authorized non-reactor nuclear facility operations at Building 23. The Administrative Manual formalizes the processes to maintain the facilities within their approved safety envelope.

1.2 RELATED SECTIONS

A. Section 01210 Facility Surveillance and Maintenance

B. Section 01460 Integrated Work Control

1.3 SUBMITTALS

A. Work Plans for Buildings WD and ATS will be reviewed by the Buyer for "USQ-Like" determinations (See Section 01460 Integrated Work Control).

1.4 SEQUENCING / SCHEDULING

A. Buyer will down grade the Building 23 to a Radiological Facility prior to the start of any demolition activities by the Subcontractor.

1.5 REFERENCES

A. Appendix D MD-10481, Auditable Safety Analysis (ASA) for the Waste Disposal Building (WD).

B. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23, and 125 (ATS)

C. Appendix G MD-10484, Building 23 Basis of Interim Operations (BIO).

D. Appendix I MD-10506, Auditable Safety Analysis (ASA) for the Alpha Treatment System (ATS) Building 125.

1.6 DEFINITIONS

A. Authorization Basis - Those aspects of the facility design basis and operational requirements relied upon by DOE to authorize operations. Those aspects considered by DOE important to the safety of facility operations.

B. Basis for Interim Operation - The basis upon which the U.S. Department of Energy has authorized non-reactor nuclear facility operations at Building 23.

1.7 DELIVERY, STORAGE, AND HANDLING

A. NOT USED

1.8 SITE CONDITIONS

A. NOT USED

PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall identify a Authorization Basis and a Basis of Interim Operations point of contact within their organization. This Subcontractor resource(s) shall have a working knowledge of DOE Nuclear and RCRA Permitted Storage Area Safety programs, Appendices E and G.

B. The Subcontractor shall institute measures to prohibit introduction of hazardous materials, radioactive materials, and excess combustible loading without prior approval by the Buyer.

3.2 APPLICATION

A. The Subcontractor shall maintain all defense-in-depth systems in operable condition until they are deactivated and removed as part of the utility isolation and building demolition process. Defense-in-depth systems listed in the ASA include:

1. Fire Detection, Suppression, and Alarm Systems

B. All proposed work must be screened to ensure that proposed activities may be conducted within WD and ATS's approved Authorization Basis and Building 23's Basis of Interim of Operations. The Buyer will conduct this screening during the Work Package review process (see Section 01460 Integrated Work Control).

3.3 SPECIAL INSTRUCTIONS

A. NOT USED

END OF SECTION

SECTION 01210

FACILITY SURVEILLANCE AND MAINTENANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The required facility surveillance and maintenance to be performed after Subcontractor mobilization and acceptance by the Buyer of the Subcontractor's Safety and Health Plan.

The level of facility surveillance and maintenance will be reduced as various building systems are removed from service. Reference Specification Section 01900 Utility Isolation and Removal, for building systems configuration change sequence.

1. Facility surveillance, required to be performed by the Subcontractor, are necessary for the occupation of Buildings WD, 23, and Alpha Treatment System (ATS) and any subsequent conduct of work activities therein:

a. Buildings WD, 23, and ATS ventilation airflows and differential pressures shall be controlled per MD-5001 FM-PM-039 and 060 and MD-5003 FM-PMT-002.

(1) Ventilation airflow shall be maintained such that the interior of the building structure has a negative differential pressure in relation to the exterior of the structure. The negative differential pressure shall be maintained until such time as the potential for the spread of particulate radiological contamination to the outside of the structure has been eliminated through decontamination and demolition efforts and/or the institution of alternate engineering controls.

(2) Ventilation air flows shall be maintained such that differential pressures between partitioned areas and/or rooms is in order of descending potential with regard to the spread of radiological particulate contamination, i.e. static air pressures shall be increasingly negative from areas of least contamination to areas of greater contamination potential.

(3) Fume Hood differential pressures shall be maintained such that the Fume Hood exhibits a negative static pressure in relation to the surrounding area. The negative pressure shall be

maintained until such time as the potential for the spread of particulate radiological contamination to the outside of the Fume Hood has been eliminated through decontamination efforts and/or the institution of alternate engineering controls.

b. Building WD and ATS sump systems and associated disposal lines.

(1) The building sump systems, Sump 20 located outside of WDA and WD Sumps located in WD-1, 01 shall be maintained in an operable condition at all times, until the sump systems are no longer needed or Phase III has been approved.

(2) The sump collection tanks should be maintained at a volume less than 70 percent. See Section 01550 Waste Management for the handling and coordination of the collected liquid waste.

c. Portable fire extinguishers, provided by the Subcontractor, shall be pressurized and in an operable condition.

d. Emergency egress lights shall be in an operable condition.

e. The presence of ignition sources and transient combustible materials shall be minimized.

f. The introduction of radioactive or hazardous materials shall be prohibited without the prior approval of the Buyer.

2. Required facility maintenance to be performed by the Subcontractor, necessary to ensure the operability of essential systems in Buildings WD, 23, and ATS. (Reference Section 1.4 Sequencing/Scheduling).

a. Building ventilation system, as necessary per the operating configuration of the system.

(1) Semi-annual lubrication of the exhaust stack fan (EF-1) shaft bearings and the WD Room 1 and 5 ventilation exhaust fans (EF-3) shaft bearings, as necessary per the operating configuration of the system.

(2) Semi-annual inspection and/or replacement of the motor pulley to fan shaft pulley drive belts of the WDA supply fan (HV-1), the WDA HEPA exhaust fan (EF-1), and the WD Rooms 1 and 5 HEPA exhaust fans (EF-3), as necessary per the operating configuration of the system.

(3) Replacement of the building's ventilation exhaust absolute

filter bank prefilters and HEPA filters located in Rooms WDA-204P and 205P, as necessary per the operating efficiency and configuration of the system. In-line filter leak (DOP) testing of the building's ventilation exhaust HEPA filter ductbanks is required annually or upon each HEPA filter changeout.

(4) Replacement of the building ventilation supply fan (HV-1) filters located West of WD-202P, as necessary per the operating efficiency and configuration of the system.

(5) Replacement of the building ventilation return dust-stop filters (to prevent premature loading of the HEPA bank prefilters) located throughout the building, as necessary per the operating efficiency and configuration of the system.

(6) Building WD ventilation exhaust stack annual airflow calibration. Approximate duration of this activity is one working day.

b. Building sump systems.

(1) Daily checks on the sump level control switches of the three sump pumps located in Sump 20 and WD-1, as necessary per the operating configuration of the system.

3. Required facility related maintenance activities to be performed by the Subcontractor, within the perimeter boundary designated in the subcontract but outside of Building WD.

a. Maintain the integrity of the asphalt/blacktop road encompassing the construction site, Drawing No. WD002, WD Project Mechanical Utilities Isolation. A quarterly surveillance inspection will be performed by the Buyer's Technical Representative to determine which, if any, surface imperfections require repairs.

b. General maintenance of the yards and grounds within the subcontract designated perimeter boundary. This shall consist of performing weed control, mowing, cleanup, trash disposal, and neatly arrange material and equipment on a daily basis.

4. Facility surveillance and maintenance activities to be performed by the Buyer's Technical Representative, within the perimeter boundary designated in the subcontract, requiring assistance from the Subcontractor labor force.

a. Receipt and movement of P10 gas cylinders for use with the

personnel contamination monitors (PCM) located inside of Building WD.

5. Facility surveillance and maintenance activities to be performed by the Buyer, within the perimeter boundary designated in the subcontract.

   a. Annual inspection and certification of the backflow preventer on the domestic (potable) water system located within Building WD, as necessary per the operating configuration of the system. The inspection and testing shall be at the discretion of the Buyer and shall be coordinated with the Subcontractor through the Buyer's Technical Representative.

   b. Inspection and testing of the fixed fire detection components located both inside and outside of Building WD, as necessary per the operating configuration of the system. The intervals of inspection and testing shall be at the discretion of the Buyer and shall be coordinated with the Subcontractor through the Buyer's Technical Representative.

1.2 RELATED SECTIONS

A. Specification sections that relate to facility surveillance and maintenance activities*:*

1. Section 01110 Safety and Health
2. Section 01150 Work in Radiologically Contaminated Areas
3. Section 01300 Submittals
4. Section 01460 Integrated Work Control
5. Section 01500 Facilities, Controls, and Project Boundaries
6. Section 01550 Waste Management
7. Section 01900 Utility Isolation and Removal
8. Section 01915 Electrical Equipment Removals
9. Section 01920 Fire Protection/Suppression Systems
10. Section 01925 Secondary Ventilation Systems Demolition
11. Section 01925 ATT I MD-50003 FM-PMT-002

12. Section 01930 Building 23 Dismantlement and Demolition

13. Section 01935 Building WD Decontamination, Dismantlement, and Demolition

14. Section 01940 ATT I MD-50001 FM-PM-039 and 060

15. Section 01945 Below Grade Removals

16. Section 01950 Building ATS Dismantlement and Demolition

1.3 SUBMITTALS

A. Facility surveillance: Required Construction Daily Report submittal shall be in accordance with Specification Section 01300 Submittals and the Subcontract Special Conditions Article 2.2, Exhibit 2.1. Inspection surveillance will be noted on Daily Report. The following shall be noted at required intervals.

1. Building differential pressure verifications shall be documented on the Construction Daily Report and submitted to the Buyer daily.

2. Building sump systems operability and sump capacity status shall be documented on the Construction Daily Report and submitted to the Buyer weekly, as necessary per the operating configuration of the system.

3. Inspection of fire extinguishers for operability shall be recorded on inspection tags attached to each fire extinguisher. Performance of this inspection shall be documented on the Construction Daily Report and submitted to the Buyer monthly.

4. Inspection of emergency egress lights for operability shall be performed periodically, on a schedule appropriate to the current condition of the structure and available routes of egress. Performance of this inspection shall be documented on the Construction Daily Report and submitted to the Buyer as performed.

5. Inspection of the building and surrounding grounds for the presence of ignition sources, transient combustible materials, and hazardous materials shall be performed daily as part of the Subcontractor general housekeeping effort to minimize potential fire hazards and uncontrolled hazardous materials. The noted inspection shall also be performed on a monthly basis with the Buyer's Technical Representative in attendance. The results of the inspection shall be documented on the Construction Daily Report and submitted to the Buyer monthly.

B. Facility Maintenance: submittal of the required Construction Daily Report shall be in accordance with Specification Section 01300 Submittals and the Subcontract Special Conditions Article 2.2, Exhibit 2.1.

1. Building ventilation systems maintenance shall be documented on the Construction Daily Report and submitted to the Buyer as performed.

a. Certificates of Conformance for the fabrication, inspection, and testing of HEPA filters shall be submitted to the Buyer for review prior to installation of the filters, if necessary.

b. A qualified individual or vendor shall conduct the in-line filter leak test. The pertinent certification shall be submitted to the Buyer for review prior to test performance.

NOTE: Qualified individual must have attended the Nuclear Consulting Services, Inc. (NUCON) in-place filter testing workshop, the Harvard School of Public Health In-Place Filter Testing Workshop, or equivalent.

2. Building sump system maintenance shall be documented on the Construction Daily Report and submitted to the Buyer as performed.

3. Building domestic (potable) water maintenance shall be documented on the Construction Daily Report and submitted to the Buyer as performed.

4. Any unusual or unexpected facility maintenance activities shall be documented on the Construction Daily Report and submitted to the Buyer as performed.

1.4 SEQUENCING/SCHEDULING

A. The sequencing and scheduling of the Subcontractor facility surveillance and maintenance activities is the responsibility of the Subcontractor within the parameters of paragraph 1.1 and 1.3.

1. Semi-annual building ventilation system maintenance is scheduled to be performed between June and December.

2. Semi-annual sump systems maintenance is on a June and December performance schedule.

3. Exhaust stack airflow calibration is annually scheduled for June performance.

B. Activities that require coordination with the Buyer require a forty-eight (48)

hour or two working day verbal notification from the Subcontractor.

1.5 REFERENCES

A. Appendix B WD Project Drawings

1. Drawing No. WD001, WD Project Site Location

B. Appendix P Photographs, Building WD

C. Appendix Q Photographs, Building 23

D. Appendix R Photographs, Building ATS

PART 2 PRODUCTS

2.1 MATERIALS

A. Subcontractor shall provide the following materials or Buyer approved equivalent:

1. Bearing lubrication grease; NLGI Grade 2 multipurpose grease.

2. Drive belts; model numbers per Motion Industries, Inc. 800-242-7477 or 937-236-7711.

a. Stack exhaust fan (EF-1)

3. HEPA ductbank prefilters; Flanders High Efficiency Econocell Air Filters. Filter Model #0-00B-C-04-01-IL-14-13-YY-D. Rated flow at 1,000 cfm, resistance of 0.35" w.g. and ASHRAE efficiency rated at 80%-85%. Nominal and actual size is 23.375" x 23.375" x 5.875". There are twenty-eight (20) prefilters in the ductbank, arranged in two sections, in a 4 x 1 and 4 x 4 configuration.

4. HEPA ductbank absolute filters; Flanders Nuclear HEPA Filter. Filter Model #0-007-C-04-00-NU-12-13-GG-FU5. Rated flow at 1,000 cfm, resistance of 1" w.g. maximum. DOP efficiency at 99.97%. Actual size is 24" x 24" x 12". A Certificate of Conformance for the filters are required, submit upon receipt. There are fifty-six (40) Nuclear HEPA filters in the ductbank, arranged in two stage two bank 4 x 1 and 4 x 4 configuration.

2.2 EQUIPMENT

A. Subcontractor shall provide:

1. All hand tools necessary to perform the listed maintenance activities. No special or unique tools will be required.

NOTE: The tools used for maintenance may become contaminated with radiological contamination and unavailable for use in other areas.

PART 3 EXECUTION

3.1 PREPARATION

A. Subcontractor shall notify the Buyer's Technical Representative, forty-eight (48) hours or two working days in advance of any non-emergency maintenance to be performed on the building ventilation or sump systems.

B. Subcontractor shall notify the Buyer's Technical Representative, immediately of the need for emergency maintenance activities on any system.

3.2 APPLICATION

A. Systems considered essential to the general safety of Buyer and subcontract personnel and the performance of demolition activities within the perimeter boundary designated in the subcontract shall be maintained in an acceptable operating condition per the requirements of this specification section.

END OF SECTION

Submittal No.	Description	Reference	Date Rec'd	Review Date	Disposition	Returned to Contractor	Schedule	Comment
	Administrative - Request for Proposal							
RFP-1	Schedule and Exhibit 1	G.4.B					monthly by the 15th	For Approval
RFP-2	Progress Payment and Exhibit 2	G.4.C					monthly by the 15th	For Approval
RFP-3	Certification and Release - Exhibit 3	G.4.D					upon completion of project	For Approval
RFP-4	Estimated Billing	G.5					monthly by the 20th	For Approval
RFP-5	Key Personnel	H.8					10 days after award	For Approval
RFP-6	Bonds; Performance and Payment	H.12					10 days after award	For Approval
RFP-7	Subcontractor Safety Qualification	H.13					10 days after award	For Approval
	Administrative - Special Conditions							
SC-1	Preliminary Task Approach and Schedule	2.1.a					10 days after award	For Info/Record
SC-2	Construction Schedule and Schedule of Values	2.12.a					10 days after approval of SC-1, 2.1.a	For Info/Record
SC-3	Construction Schedule Updates	2.12.b					Bi-weekly after NTP	For Info/Record
SC-4	Daily Activities Report and Exhibit 2.1	2.2					as required	For Info/Record
SC-5	Daily Safety Checklist	2.2					as required	For Info/Record
SC-6	ISMS Matrix, Exhibit 3.1, and Letter	3.1					10 days after award	For Approval
SC-7	Hazard Material Report Exhibit 5.1	5.3.F					prior to mobilization	For Approval
	Administrative - Terms and Conditions							
T&C-1	Insurance	I.13					5 days after award	For Approval
01110	**Safety and Health**							
01110-1-a	Contractor Safety and Health Plan	1.2.A					10 days after award	For Approval
01110-2-b	Individual Accident/Incident Report	1.2.G.2					2 days after accident	For Info/Record
01110-3-c	OSHA 200/300 Log	1.2.G.3					upon request	For Info/Record
01110-4-d	MSDS's	1.5.B					as required	For Info/Record
01110-5-e	Lead Compliance Plan	1.5.C					30 days prior to work	For Approval
01110-6-f	Asbestos Abatement Plan	1.5.D					30 days prior to work	For Approval
01110-7-g	Safety and Health Officer Qualifications	1.5.E					as required	For Approval
01110-9-h	Shoring Plan	1.5.F					as required	For Approval
01110-10-i	Competent Person List	1.5.G					as required	For Approval
01110-12-j	Engineering Survey	1.5.H					30 days prior to work	For Approval
01130	**Asbestos**							
01130-1-pre-a	License	1.4.A.1					30 days prior to work	For Info/Record
01130-2-pre-b	Work Package	1.4.A.2					30 days prior to work	For Approval
01130-3-pre-c	Competent Person	1.4.A.3					30 days prior to work	For Info/Record
01130-4-pre-d	Emergency Personnel	1.4.A.4					30 days prior to work	For Info/Record
01130-5-pre-e	Trained Personnel	1.4.A.5					30 days prior to work	For Info/Record
01130-6-pre-f	Testing Laboratory	1.4.A.6					30 days prior to work	For Info/Record
01130-7-pre-g	Medical Exams	1.4.A.7					30 days prior to work	For Info/Record

Submittal No.	Description	Reference	Date Rec'd	Review Date	Disposition	Returned to Contractor	Schedule	Comment
01130-8-pre-h	State of Ohio Notifications	1.4.A.8					30 days prior to work	For Info/Record
01130-9-con-i	HEPA Filter Certification	1.4.B.1					during construction	For Info/Record
01130-10-con-j	Chemical Exposure Monitoring	1.4.B.2					during construction	For Info/Record
01130-11-con-k	Air Monitoring Results	1.4.B.3					during construction	For Info/Record
01130-12-con-l	Sampling Results	1.4.B.4					during construction	For Info/Record
01130-13-con-m	Entry/Exit Log	1.4.B.5					As Required and Project Closeout	For Info/Record
01130-14-con-n	Shower Filter	1.4.B.6					during construction	For Info/Record
01130-15-con-o	Request for Utilities Shutdown	1.4.B.7					during construction	For Info/Record
01150	**Work in Radiologically Contaminated Areas**							
01150-1-a	Sources	1.3.A					prior to use	For Approval
01150-2-b	RAD Training Records (Rad Worker II)	1.6.A					7 days in advance	For Info/Record
01150-3-c	HEPA Filter Test	1.6.B					prior to use	For Approval
01150-4-d	Request for GERT	1.7.A					2 days in advance	For Info/Record
01150-5-e	Request for Equipment Surveys	1.7.B					7 days in advance	For Info/Record
01150-6-f	RWP Request	1.7.C					7 days in advance	For Info/Record
01150-7-g	Exit Bioassay	1.7.D					2 days prior to termination	For Info/Record
01180	**Respiratory Protection**							
01180-1-a	Respiratory Protection Program	1.5.A.1					30 days prior to work	For Approval
01180-2-b	Copy of Fit-Test Results	1.5.B.1					"prior to work" and "As Required"	For Info/Record
01180-2-c	Required Records	1.5.B.2					"prior to work" and "As Required"	For Info/Record
01190	**Environmental Compliance**							
01190-1-a	Fugitive Emissions Control Plan	1.4.C.1					prior to work	For Approval
01190-2-b	Spill Prevention and Control Plan	1.4.C.2					10 days after award	For Approval
01190-3-c	Erosion Control Plan	1.4.C.3					prior to demolition	For Approval
01190-4-d	Utilities Isolation Plan	1.4.C.4					prior to demolition	For Approval
01190-5-e	Liquid Discharge to Sewers	1.4.C.5					as required	For Info/Record
01190-6-f	RAPCA Notice of Asbestos Removal Completion	1.4.C.6					as required	For Info/Record
01190-7-g	Exhaust Stack Monitoring B/U Plan	1.4.C.7					as required	For Approval
01190-8-h	RAPCA/ODH Notification	1.4.D.1					as required	For Info/Record
01190-9-i	List of Ozone Depleting Substances	1.4.D.3					prior to work	For Approval
01190-10-j	Asbestos Inspection Reports	1.4.D.4					as required	For Info/Record
01190-11-k	Radionuclide Inventories	1.4.D.5					every 3 months	For Info/Record
01190-12-l	ODS Recycling and Recovery Equipment Certificatio	1.4.D.6					prior to work	For Approval
01190-13-m	40 CFR 82, Part F. Compliance Evidence	1.4.D.7					prior to work	For Info/Record
01190-14-n	Refrigeration Technicians Certifications	1.4.D.8					prior to work	For Approval
01190-15-o	Notice of Intent to Stop Stack Monitoring	1.4.D.9					45 days in advance	For Info/Record

Submittal No.	Description	Reference	Date Rec'd	Review Date	Disposition	Returned to Contractor	Schedule	Comment
01210	**Facility Surv. and Maintenance**							
01210-1-a	Bldg DP's Daily Activity Report	1.3.A.1					daily	For Info/Record
01210-2-b	Bldg Sump/Tank Status	1.3.A.2					weekly	For Info/Record
01210-3-c	Inspect Fire Extinguisher	1.3.A.3					monthly	For Info/Record
01210-4-d	Em. Egress Lights check	1.3.A.4					as appropriate	For Info/Record
01210-5-e	Ignition Sources Inspection	1.3.A.5					daily	For Info/Record
01210-6-f	HEPA Filter COC	1.3.B.1.a					prior to installation	For Info/Record
01210-7-g	In-Line Filter Test Certification	1.3.B.1.b					prior to installation	For Info/Record
01210-8-h	Sump Condensate System Maintenance	1.3.B.2					as appropriate	For Info/Record
01210-9-I	Potable Water Maintenance	1.3.B.3					as appropriate	For Info/Record
01210-10-j	Unusual/Unexpected Maintenance	1.3.B.4					as appropriate	For Info/Record
01400	**Quality Assurance**							
01400-1-a	Quality Assurance Plan	1.4.A					prior to work	For Approval
01400-2-b	Non-Conformance Reports	1.4.B					2 days after discovery	For Info/Record
01460	**Integrated Work Control**							
01460-1-a	Work Package	1.3.A/B					30 days prior to work	For Approval
01460-2-b	Work Package	1.3.A/C					6 months prior to work	For Approval
01500	**Facilities/Controls/Project Boundaries**							
01500-1-a	Facility Location Plan	1.4.A					10 days after award	For Approval
01500-2-b	Access Monitor Identification	1.4.B					10 days after award	For Info/Record
01500-3-c	Traffic Control Plan	1.4.C					30 days prior to work	For Approval
01550	**Waste Management**							
01550-1-a	Monthly Waste Generation Report	1.3.A					monthly	For Info/Record
01550-2-b	Two Month Waste Generation Look Ahead	1.3.B					every 2 months	For Info/Record
01550-3-c	Records of TRU Waste Packaging	1.3.C					as performed	For Info/Record
01550-4-d	Records of Scale Calibrations	1.3.D					as performed	For Info/Record
01550-5-e	Requests for Empty Containers	1.4.A					2 weeks prior	For Info/Record
01900	**Utility Isolation and Removal**							
01900-1-a	Work Package	1.4.A					30 days prior to work	For Approval
01900-2-b	Outage, Permit, and Support Request	1.4.B					7 days prior to work	For Approval
01900-3-c	Utility System Outage Request	1.4.C					7 days prior to work	For Approval
01900-4-d	Work Permits Request	1.4.D					48 hours prior to work	For Approval
01900-5-e	RWP Request	1.4.E					7 days prior to work	For Info/Record
01900-6-f	Backfill Material Information	1.4.F					30 days prior to work	For Approval
01915	**Electrical Equipment Removals**							
01915-1-a	Work Package	1.3.A					30 days prior to work	For Approval

Submittal No.	Description	Reference	Date Rec'd	Review Date	Disposition	Returned to Contractor	Schedule	Comment
01920	**Fire Protection/Suppression Systems**							
01920-1-a	Work Package	1.4.A					30 days prior to work	For Approval
01920-2-b	Outage, Permit, and Support Request	1.4.B					7 days prior to work	For Approval
01920-3-c	Appropriate Protection/Suppression	1.4.C					7 days prior to work	For Approval
01920-4-d	Work Permits Request	1.4.D					48 hours prior to work	For Approval
01920-5-e	RWP Request	1.4.E					7 days in advance	For Info/Record
01925	**Secondary Ventilation Systems Demolition**							
01925-1-a	Work Package	1.6.A					30 days prior to work	For Approval
01925-2-b	Licensed HVAC Technician	1.6.B					30 days prior to work	For Approval
01930	**Building 23 Demolition**							
01930-1-a	RAPCA/ODH Notifications	1.6.A					as required	For Info/Record
01930-2-b	Radionuclide Inventories	1.6.B					30 days prior to work	For Info/Record
01930-3-c	Engineering Survey	1.6.C					30 days prior to work	For Approval
01930-4-d	Work Package	1.6.D					30 days prior to work	For Approval
01935	**Bldg. WD Dismantlement and Demolition**							
01935-1-a	RAPCA/ODH Notifications	1.6.A					as required	For Info/Record
01935-2-b	Radionuclide Inventories	1.6.B					every 3 months	For Info/Record
01935-3-c	Engineering Survey	1.6.C					30 days prior to work	For Approval
01935-4-d	Work Package	1.6.D					6 months prior to work	For Approval
01940	**WD Ventilation System Demolition**							
01940-1-a	RAPCA/ODH Notifications	1.6.A					as required	For Info/Record
01940-2-b	Radionuclide Inventories	1.6.B					every 3 months	For Info/Record
01940-3-c	Work Package	1.6.C					6 months prior to work	For Approval
01945	**Below Grade Removals**							
01945-1-a	Work Package	1.6.A					6 months prior to work	For Approval
01950	**ATS Dismantlement and Demolition**							
01940-1-a	RAPCA/ODH Notifications	1.6.A					as required	For Info/Record
01940-2-b	Radionuclide Inventories	1.6.B					every 3 months	For Info/Record
01940-3-c	Engineering Survey	1.6.C					30 days prior to work	For Approval
01940-4-d	Work Package	1.6.D					6 months prior to work	For Approval
16000	**Electrical**							
16000-1-a	Product Data and Information	1.7.A					30 days prior to work	For Approval
16000-2-b	Substation Isolation Work Package	1.7.B					30 days prior to work	For Approval
16000-3-c	Documentation of Bldg. 38 De-Energized	1.7.C					for approval	For Info/Record
16000-4-d	Test Reports	1.7.D					after completion	For Info/Record
16000-5-e	Outage, Permit, and Support Request	1.7.E					7 days prior to work	For Approval
16000-6-f	Electrical Firm Qualifications	1.7.F					30 days prior to work	For Approval

SECTION 01300

SUBMITTALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for submittals identified in the specifications and on the drawings.

1.2 DEFINITIONS

A. As-Constructed Drawings: "Red-line mark-ups", sketches, or similar documentation of changes provided at completion of the project that represents changes made in the field which differ from the Contract Documents.

B. Certification: Verification of compliance to a specified requirement.

C. Inspection, Test, and Submittal Checklist: A summary of inspections, tests, and submittals required in the technical specifications and on the drawings.

D. Integrated Test Plan: A plan for testing an integrated system to ensure that equipment, mechanical systems, instrumentation, and electrical systems perform specified requirements. Test procedures are required to implement an integrated test plan.

E. Operation and Maintenance Manuals: Operation instructions, repair manuals, and parts list providing information needed to maintain and operate installed material and equipment.

F. Pre-approved Products: Products listed in the individual specification sections by specific manufacturer, model, series, catalog number, or national standard (ASTM, ANSI, etc.).

G. Procedures and Policies: Documents that provide detailed instructions of how specified results will be obtained. These are designated numerically at the Mound Site with the prefixes “MD” for procedures and “PP” for policies.

H. Product Data: Illustrations, material schedules, performance charts, instructions, brochures, and other information furnished to illustrate materials or equipment.

I. Samples: Physical examples of materials, equipment, or workmanship that

represent a portion of the Work and establishes the standards by which the portion of Work will be judged.

J. Shop Drawings: Drawings, diagrams, illustrations, material schedules, and data specifically prepared to illustrate a portion of the Work.

K. Test and Inspection Reports: Test results and/or inspection results. Certified test reports for materials require manufacturer's verification of the specified requirements.

L. Work Package: A document that provides detailed instructions of how specified results will be obtained, specifically by describing the expected typical tasks to be performed and the requirements to be followed to assure safe completion of the tasks.

M. Laboratory Analysis Report: A document that provides detailed results of analysis performed. The specified results shall be submitted in the required electronic format.

1.3 SUBMITTAL REQUIREMENTS

A. Documents shall be submitted under cover of the Technical Submittal Form, which is found in the Special Conditions.

B. Individual specification sections will identify specific submittals required for approval or information.

C. See Section 01300 Submittal Schedule, Attachment 1 for a summary of Project Submittal Requirements.

D. Pre-approved products do not require a submittal except as noted in the individual specification sections.

E. Submittals: The Subcontractor shall submit all Submittal Packages and documents, other than analysis data, in accordance with the requirements specified in Section 01300 Attachment I. All technical submittals shall be generated in Microsoft Word document format or, as needed, in Microsoft Excel. The submittals shall be transmitted to the Buyer as five hard copies and one uncontaminated write protected disk or CD.

Note: All submittals should be formatted in size 12 Times New Roman font.

F. Sample Data and Analysis Results: Data analysis results are required to be submitted in the Excel format.

Subcontractor shall require their laboratories to group the electronic data. The

data report shall be segregated into organic analyses, metals analyses, and inorganic analysis results.

Subcontractor shall be responsible for any data validation efforts and reporting the results to the Buyer. Required data validation documents:
Documentation Requirements, Laboratory Data Reduction, Laboratory Data Reporting, Data Package Summary, Validation of Laboratory Data Packages, Data Assessment, Data Integrity Verification, Data Validation for Field Measurements

G. Submittal for Approval

1. Obtain written approval prior to activity commencement and before delivery of material or equipment to the Work site.

2. Submit proposed substitutions for approval.

H. Submittal for Information

1. Provide when equipment or material is delivered to the Work site.

2. Provide reports, documents, and written procedures prior to starting the related work.

3. The Buyer will not provide written response.

I. Number of Copies

1. Five (5) hard copies and one (1) electronic copy, except as noted. After review has been indicated on each copy by appropriate signature, stamp and date, three (3) copies will be returned to the Subcontractor and the balance retained by the Buyer. If the Subcontractor requires the return of more than three approved copies, he must submit an equal number of additional copies or a reproducible copy.

2. Exceptions

a. As-Constructed Drawings: One set, (redlined).

b. Shop Drawings: One reproducible.

c. Samples: One.

d. Work Packages

(1) The Subcontractor shall submit an Integrated Work Control

Package for each task to be performed. This can be one work control package with sections on each task or a series of work control packages. The Subcontractor shall follow the format and instructions for copies specified in Section 01460 Integrated Work Control.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 BUYER REVIEW

A. The Buyer review period for all submittals shall be 30 calendar days, unless otherwise noted.

3.2 SUBCONTRACTOR REVIEW

A. All submitted documents shall bear the approval stamp and signature of the Subcontractor submitting the same as evidence that such documents are in conformance of the requirements of Contract Documents.

B. All submitted documents shall have the attached Subcontractor Submittal Review and Transmittal sheet, with the top section completed.

1. Submittals shall be numbered SSSSS-X-Y where SSSSS is, the CSI specification number that the submittal is related to. X is a sequential number of the submittal made against this specification, and Y is the number of tracking re-submittals against the SSSSS-X number. For example, if there were to be three submittals against the electrical specification of Section 16000, the first submittal would be 16000-1-0. If it would require re-submittal, the number would increment to 16000-1-1. The second submittal against 16000 would be 16000-2-0, and the re-submittal would be 16000-2-1.

C. Coordinate submittals with the work requirements and the Contract Documents.

D. Do not begin work activities requiring approval until written acceptance is obtained.

3.3 PREPARATION

A. Work Packages

1. Prepare and submit Work Packages in accordance with the Section 01460 Integrated Work Control and the specific discipline sections.

B. As-Constructed Drawings

1. Provide documentation showing actual conditions upon completion of the work.

2. Show existing underground utilities not identified on the drawings or excavation/penetration permit.

3. Provide elevations, survey points, etc., material identification, and location.

C. Test Report

1. Submit within 5 calendar days after test is performed and results received. Notify Buyer within 24 hours of test results failing to meet specified requirements.

2. Include item tested, date, name of individual performing test, test method, results, actions taken, and signature of responsible person.

D. Inspection Report

1. Submit within 5 calendar days after test is performed. Notify Buyer within 24 hours of any inspection failing to meet specified requirements.

2. Include item inspected, date, inspector's name, type of inspection acceptance criteria, results of inspection, actions taken, and signature of responsible person.

E. Shop Drawings

1. Identify field dimensions and show relation to adjacent or critical features.

2. Indicate special utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment.

3. Sketches may be used in lieu of drawings for “In-house” fabrication, but must have a title block to include origination, date, and company.

F. Product Data

1. Submit only pages that are pertinent to the Work. Mark standard printed data to identify products. Reference Specification Section and Article number.

2. Show reference standards, performance characteristics, and capacities; wiring and piping diagrams and controls; component parts; finishes; dimensions; weight and required clearances.

3. Modify manufacturer's standard schematic drawings and diagrams to supplement standard information and provide information applicable to the project. Delete information not applicable.

G. Samples

1. Provide the samples as required in specification sections.

END OF SECTION

SECTION 01400

QUALITY ASSURANCE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Quality Assurance requirements for the project.

1. Submit a detailed Quality Assurance Plan (QAP) specific to the work to be performed. The QAP shall contain a description of how the QA Criteria described in this section will be implemented.

2. Approval of the QAP is required prior to performance of procurement or work activities, and revisions shall be approved by the Buyer. Acceptance of the QAP does not relieve the Subcontractor of meeting the contract requirements.

1.2 RELATED SECTIONS

A. Section 01190 Environmental Compliance

B. Section 01205 Authorization Basis

C. Section 01300 Submittals

D. Section 01460 Integrated Work Control

1.3 REFERENCES

A. 10 CFR 830.120, Quality Assurance Requirements

1.4 SUBMITTALS

A. Quality Assurance Plan (QAP)

B. Nonconformance Reports (NCR)

1.5 QUALITY ASSURANCE CRITERIA

A. Program

1. Provide organizational structure for the project, including levels of

authority and functional responsibilities.

2. Describe interface for those managing, performing, and assessing adequacy of work, including work assigned to lower tier subcontractors and independent testing laboratories.

3. Define the responsibilities and authority to stop unsatisfactory work and establish methods for determining prerequisites prior to resuming work.

4. The Program shall:

   a. Identify the activities and items to which it applies.

   b. Provide control over activities affecting quality to an extent consistent with their importance.

   c. Provide for special controls, processes, test equipment, tools, and/or skills to attain and maintain the required quality.

B. Personnel Training and Qualification

1. Define the methods for establishing the requirements for specific job categories such as inspectors, instructors, welders, IS&H and laboratory personnel.

2. Ensure employees performing work have sufficient training and possess the necessary skills to perform assigned tasks in compliance with contractual requirements.

3. Address the methods in which training and indoctrination of personnel, including certification as required, will be conducted and documented.

4. Provide controls to ensure work/site-specific training is completed for personnel before starting the work.

C. Quality Improvement

1. Take necessary actions to promptly correct non-conformances whether identified by the Subcontractor or the Buyer.

2. Control and document non-conformances in accordance with the Contract Documents.

3. Submit NCRs requiring Buyer approval (i.e., Use As-Is or Repair) using the Buyer's design change document.

4. Identify critical operations for which trends will be tracked in order to assess the effectiveness of the quality program and methods in which data will be collected for trending purposes. Provide measures for prompt detection and correction of conditions deemed adverse to quality.

5. Identify the methods in which non-compliant conditions adverse to quality are documented, to include: noncompliance description, corrective action taken or to be taken, cause analysis and actions to prevent recurrence.

D. Documents and Records

1. Define the methods in which documents that establish policies, prescribe work, or describe safety requirements are prepared, submitted, reviewed, approved, and revised.

2. Implementing procedures shall contain sufficient quantitative and qualitative acceptance criteria for determining the acceptance of work being performed.

3. Establishing a document control system that will:

   a. Identify the documents to be controlled and their specified distribution.

   b. Identify the personnel, positions, and/or organizations responsible for preparing, reviewing, approving, and issuing documents.

   c. Include a review of documents for adequacy, completeness, and correctness by technically competent personnel prior to issuance.

   d. Provide assurance that correct and applicable documents are available at the location where they are needed.

   e. Provide controls of superseded or canceled documents to ensure that only correct and current documents are in use.

4. Establish a records system that specifies records to be generated and maintained accurately reflect completed work.

5. Include provisions for retention, protection, preservation, traceability, accountability, retrievability, and validation.

6. Address methods governing access to record files and control and accountability for records removed from files.

7. Transmit Inspection Records, Test Records, NCRs, and corrective action

documents to the Buyer as they are generated in accordance with Section 01300.

8. Test/Inspection Records shall contain:

   a. Job title.

   b. Date of test.

   c. System equipment identification.

   d. Specific type of test performed.

   e. Description of test instrumentation and date of calibration.

   f. Section of specification defining test, with accept/reject criteria identified.

   g. Test results.

   h. Actions taken as a result of any deviations noted during the test.

   i. Signature of person supervising test.

   j. Signature of Subcontractor representative.

E. Work Processes

1. Identify processes to be controlled and control methods conforming to contractual requirements.

2. Define the appropriate control measures and procedures to be used for each controlled process.

3. Establish the methods to assure that identification of items are maintained.

4. Establish processes to control consumables and items with limited shelf life to prevent use of incorrect or defective items.

5. Establish measures to control the handling, storage, shipping, cleaning, and preservation/traceability.

6. Define methods for marking and labeling of items during packaging, shipping, handling, and storage.

F. Design

1. Define the processes used for design activities performed.

2. Address control of design requirements, inputs, processes, outputs, changes, records, and organizational interfaces.

3. Identify methods for translating design input, such as the design basis, reliability requirements, and fire protection requirements into design output documents.

4. Identify design records requirements required to provide evidence that design was properly accomplished, such as calculations, analyses, and computer programs.

5. Define the methods used for design verification, including design reviews, alternate calculations, and qualification testing.

6. Document changes to approved design via the Buyer design change document. This design change document must outline the proposed change and justification for it. Forward to the Buyer for processing. Work shall not be performed to the requested change until approval is obtained. Identify the persons or positions with authority to initiate and process design change documents.

7. Address the methods for maintaining redlined/as-built drawings.

G. Procurement

1. Define the procurement procedure to be implemented to ensure purchased items and services meet specified requirements and perform as expected.

2. The procedure shall address the following:

   a. Inclusion of applicable technical requirements and acceptance criteria.

   b. Appropriate controls for the selection, determination of suitability, evaluation, and receipt of purchased items (Receipt Inspection).

   c. Evaluation of prospective suppliers to ensure qualified suppliers are selected.

   d. Methods of acceptance of items, such as review of manufacturing process data, source validation, receipt inspection, pre-installation and post-installation tests, certificates of conformance, or

combination thereof.

e. Resolution of supplier non-conformances.

H. Inspection and Acceptance Testing

1. Establish methods to specify types of inspection (i.e., source, in-process, final, receipt, etc.) to be performed.

2. Define administrative controls and/or status indicators to preclude inadvertent bypassing of required inspections and preventing inadvertent operation of the item or process.

3. Identify methods of inspection planning and identify the organization responsible for performing required inspections.

4. Establish testing methods that demonstrate items and processes perform as intended.

5. Test procedures shall include:

a. Instruction and prerequisites to perform the test.

b. Assurance of completeness and accuracy of data.

c. Use of test equipment.

d. Acceptance criteria.

e. Inspection hold points, as required.

f. Test records.

6. Define the control methods for calibration, maintenance, accountability and use of M&TE that are used for in-process or final acceptance of an item. Controls shall ensure the M&TE is of the accuracy and type suitable for the intended use.

7. Identify the type of M&TE to be used and calibration frequencies.

8. Provide controls for M&TE to indicate calibration status, date of next scheduled calibration, person who performed the calibration, and traceability to calibration test data.

9. Calibrate M&TE against standards having an accuracy that will ensure calibrated equipment will meet required tolerances. Use nationally

recognized standards.

10. Provide for tagging or segregating M&TE found out of tolerance and provide evaluation of acceptability of items or processes measured, inspected, or tested with out-of-tolerance M&TE.

11. Schedule tests to allow witnessing by the Buyer. Final acceptance of test results is the responsibility of the Buyer.

I. Independent Assessment

1. The Buyer may perform random or scheduled assessments to determine effectiveness of Subcontractor QA efforts and verify compliance to the contract requirements.

PART 2 PRODUCTS

2.1 MATERIALS - NOT USED

PART 3 EXECUTION

3.1 IMPLEMENTATION

A. Implement QAP requirements during performance of the Work.

END OF SECTION

SECTION 01460 - ATTACHMENT I

WORK PACKAGE FORMAT

PART 1 GENERAL

1.1 Work Package Format section 01460 includes: Format to be followed for generating Work Packages for review an approval.

A. Pages in the body of the Work Package shall be numbered "Page X of Y", where X is the page number and Y is the total number of pages in the Work Package.

B. All signatures shall be entered in blue or black indelible ink and dated.

C. All Work Packages shall be submitted in the electronic format defined in Sections 01300 Submittals and 01460 ATT I.

PART 2 COVER PAGE

2.1 A Cover Page shall be used for all Work Packages and Work Package revisions with the names, title, and signatures of Subcontractor reviewers.

2.2 The Work Package Number is assigned by the Subcontractor in the form Bldg. WD-XXX(-YY), where XXX is a sequentially assigned control number, and YY is the field indicating the revision number.

2.3 Revisions will be numbered sequentially with the original approved Work Package numbered as Revision 0.

2.4 Drafts should also be numbered with letter designations A, B, C, etc.

PART 3 REVISION HISTORY FORM

3.1 A Revision History Form will follow the Revision 0 Cover Sheet. The revision history form shall include the items listed in below:

A. The person entering the approved revision will enter the Revision Number, a brief narrative explanation for the revision, the date the revision was entered, and the name and signature of the person entering the revision. Buyer must approve the revision.

PART 4 TABLE OF CONTENTS

4.1 A Table of Contents, with at least the following sections, is recommended and should follow the Revision History Form. The Work Review Group will add other sections as required for the specific activity or project:

A. Work Package

B. Work Scope

C. Drawings and References

D. Hazards Identification, Analysis, Mitigation and Operational Controls

E. Work Performance Requirements, Initial Conditions and Prerequisites

F. Work Instructions

G. Pre-Job Briefings and Updates

H. Post Job Review

4.2 Work Package Backup Package

A. Work Package Backup Package documents may include: calculations, facility history information, characterization studies and backup data, radiation survey data sheets (RSDS), air flow studies, waste management plan, unreviewed safety questions (USQ), etc. (NOTE: Facility History, RSDS, and USQ furnished by the Buyer).

PART 5 WORK SCOPE

5.1 The objective(s) and intent of the Work Package will be included with a listing of major activities to be performed and equipment affected by the work and safety requirements. Any specific exclusions or exceptions shall be indicated. This is the first of the five ISMS Core Functions.

PART 6 DRAWINGS AND REFERENCES

6.1 Development References

A. List all pertinent references used to develop the Work Package.

6.2 Performance References

A. List all references workers will be required to use in performing the work.

B. Performance references shall be included as an appendix to the Work Package.

NOTE: Including specific sections of references in the body of the Work Package rather than referring the user to an appendix reduces the risk of personnel error.

PART 7 INITIAL CONDITIONS AND PREREQUISITES

7.1 List those actions required to be verified prior to starting work; for example:

A. Readiness Evaluation

B. Notifications

C. LOTO

D. Permit Approvals

E. Verification of training/qualifications

F. Special tools, equipment, parts, and materials

NOTE: Do not list commonly available materials and "tools of the trade". Do list any equipment requiring calibration.

G. Pre-Job briefing

H. Pre-Job radiological surveys

I. ALARA review

J. The name and signature of the Job Supervisor verifying prerequisites completed

NOTE: The Job Supervisor is the person responsible for the safe conduct of the work described in the Work Package. If the Job Supervisor is replaced with another person, temporarily or permanently, workers should be immediately advised.

7.2 For each pre-job work prerequisite, establish whether specific signature verification of the prerequisite is required, whether the item must be completed before work initiation or some intermediate milestone, etc.

PART 8 WORK INSTRUCTIONS

8.1 The work instructions, in combination with the use of permits and effective supervision, provide the mechanism for workers to use in "Working Within Controls," the fourth of the five ISMS Core Functions.

8.2 Write action steps to develop the activities.

A. Workers are expected to follow instruction steps in the exact sequence presented unless otherwise stated within the document.

B. Incorporate the level of detail sufficient for the intended workers.

C. Provide spaces, when appropriate, to allow for entering or recording:

1. An initial, a check mark, or an X in a place keeping box, as appropriate.

2. Worker's or inspector's signature.

3. Independent or second party verifier's signature.

4. Data, remarks, and other information.

5. Hold point sign-offs

D. Incorporate all of the appropriate requirements of the Health & Safety practices governing the work to be performed (e.g., Welding, Confined Space Entry, Excavation and Trenching, Radiological Controls, LOTO, etc.) For example, selected requirements for confined spaces entry which should be specifically addressed in the Work Package include the posting of an observer, Industrial Hygiene analysis prior to entry, and daily (or more frequent) atmospheric sampling.

8.3 Write Action Steps To Develop The Activities

A. Ensure that appropriate radiological controls are incorporated into the work package, including: contamination and radiation surveys, airborne radioactivity monitoring, high radiation area controls, personnel breathing zone air sampling, radiological hold points, special postings, dosimeter requirements, and other applicable radiological controls.

1. Record data generated by a document in the body of the Work Package or in data sheets provided as appendices to the Work Package.

2. For jobs that will be worked by more than one shift, or over a period of several days, require and make provisions for recording daily and/or pre-shift briefings. Consider also re-verification of selected prerequisites required to be met prior to restarting work.

3. Provide warnings or cautions ahead of and on the same page as the steps to which they apply. The location of warnings and cautions applies to

action steps wherever they are used. For example, precautions and limitations, performance, data sheets, or appendices.

PART 9 POST JOB REVIEW

9.1 This section of the Work Package provides documentation of the last of the five ISMS Core Functions, "Feedback and Continuous Improvement."

9.2 Document areas identified by the Project Team for continuous improvement or Lesson's Learned.

END OF SECTION

SECTION 01460 - ATTACHMENT II

READINESS EVALUATION FOR INTEGRATED WORK CONTROL PACKAGES

Work Package Title: _____ **Preparer _____** **Work Package Number _____Page ____of ____.**	**Required Items (Yes, No or N/A)**	**Validate Required Items (Buyer's Technical Rep. Initials)**	
I. **FACILITY AND RELATED EQUIPMENT**			
I.1. **Industrial Safety and Hygiene**			
I.1.1. Are all required physical safety systems operational and functioning?			
I.1.2. Are required utilities operational?			
I.1.3. Is required ventilation functioning & available?			
I.1.4. Is required breathing air in place?			
I.1.5. Is appropriate storage available for flammable material?			
I.1.6. Are the MSDS sheets available at the worksite?			
I.1.7. Is required lighting available and functioning?			
I.1.8. Is required PPE available at the Job Site?			
I.1.9. Have work/rest cycles been established and the workers been briefed?			
I.1.10. Is critical lift plan required?			
I.1.11. Have preparations been made to have a certified HVAC mechanic evacuate the systems (freon)?			
I.1.12. Has elevated work surface/fall protection training been verified?			
I.1.13. Has confined space entry training been verified?			
I.1.14. Has scaffolding inspection been completed and tag installed or at work site?			
I.1.15 Is Industrial Hygiene type Air quality checks required?			
Other:			
I.2. **Emergency Preparedness**			
I.2.1. Is emergency communications available and verified to be functioning?			
I.2.2. Is necessary fire equipment in-place, functional and properly labeled?			
I.2.3. Are evacuation routes designated and posted or building exit signs clearly visible?			
I.2.4. Are warning devices and alarms for safety system malfunctions (i.e., ventilation) in place?			
I.2.5. Are required safety showers, eyewash stations, or decon facilities in place and functional?			
I.2.7. Are spill containment materials available?			
Other:			
I.3. **Fire Protection**			
I.3.1. Are flammable materials minimized at work site?			
I.3.2. Are any hot work operations planned (cutting, welding, grinding)?			
I.3.3. Are extinguishers present?			
I.3.4. Fire Protection Plan in place?			
Other:			

Work Package Title: _____ **Preparer _____** **Work Package Number _____Page ____of ____.**	**Required Items (Yes, No or N/A)**	**Validate Required Items (Buyer's Technical Rep. Initials)**	
I.4. **Waste Management**			
I.4.1. Has potential waste been adequately characterized?			
I.4.2. Are proper containers available on site?			
Other:			
I.5. **Radiation Protection**			
I.5.1. Are required radiological surveys current?			
I.5.2. Have workers been briefed on the ALARA review?			
I.5.3. Have the required air monitoring evaluations been completed and monitoring in place?			
I.5.4. If an RWP is required, has it been completed and a copy available at the job site?			
I.5.5. Is required personnel or environmental monitoring equipment available at the jobsite?			
Other:			
I.6. **Environmental Protection**			
I.6.1. Are effluent control systems operational, and do they meet appropriated specifications?			
I.6.2. Have permit modifications/ notifications been completed?			
I.6.3. OEPA Notification of Demolition & Renovation filed with RAPCA? (10-day or 20-day notification period required)			
I.6.4. Have the required NESHAPs calculation been completed?			
Other:			
I.7. **Equipment/Hardware Material**			
I.7.1. Is the calibration current for equipment requiring calibration?			
I.7.2. Is preventative maintenance for critical equipment current and up-to-date?			
Other:			
II. **PROCEDURES AND MANAGEMENT CONTROLS**			
II.1. **Written Procedures**			
II.1.2. Are required permits (RWP, burn, excavation, etc.) available at the work site?			
Other:			
II.2. **Managerial Controls**			
II.2.1. Has coordination of required system outages with building or site been completed?			
II.2.2. Is appropriate staff available?			
II.2.3. Has the required walkdown prior to start of work been completed?			
Other:			
III. **PERSONNEL READY**			

Work Package Title: _____ **Preparer _____** **Work Package Number _____Page ____of ____.**	**Required Items (Yes, No or N/A)**	**Validate Required Items (Buyer's Technical Rep. Initials)**	
III.1. Training, Testing & Qualification			
III.1.1. Is training complete and documented records up to date?			
III.1.2. Do any training certifications expire within the schedule of the project?			
III.1.3. Has any dry run or demonstration been completed?			
III.1.4. Are personnel aware of the 'person-in-charge' concept, i.e., who is in charge for all field operations? Has an alternate been identified?			
III.1.5. Does the pre-job conference adequately consider the net effect of recent changes, new hazards, maintenance, etc.?			
III.1.6. Are personnel aware of their stop work authority?			
III.1.7. Has a review of the personnel assigned to the project been conducted to assure none are restricted?			
Other:			

SECTION 01460

INTEGRATED WORK CONTROL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Integrated Work Control Package(s) (IWCPs) include:

1. This section specifies the requirements for the development, review, comment incorporation, and approval of Integrated Work Control Package(s) (IWCPs) which will be referred to as Work Packages.

2. All Integrated Work Control Packages shall comply with Buyer's "Terms and Conditions of Purchase" I.19 Integration of Environment, Safety and Health into Work Planning and Execution and Special Conditions 3.1.

3. The Subcontractor's Integrated Work Control Packages or a copy shall be kept at the work area during performance of the work to allow the personnel performing the work access to the Package to ensure compliance. Both the original and the copy shall be controlled.

4. All Integrated Work Control Packages shall be reviewed by the Buyer to verify that work is covered by the current Authorization Basis (see Section 01205).

B. Work Phases

1. This project is subdivided into six phases.

a. Phase I work includes isolation of the facility and re-establishing power to designated vital equipment and all activities necessary to accomplished decontamination, dismantlement and demolition of the facility. The integrity of the WD facility "environmental envelope" shall remain intact. The "environmental envelope" consists of the building structure, the ability to maintain a negative pressure to the outside, the operation of the building exhaust air HEPA filter bank, and effluent monitoring of the discharge air from the filter bank to the outside environment.

b. Phase II work includes all decontamination, dismantlement and demolition activities to remove the High and Low Risk Ventilation System and the building exhaust air HEPA filter bank, effluent monitoring system, and exhaust stack. This phase consists of

removing the High and Low Risk Exhaust Ventilation ducting inside the building, the ventilation supply system on the roof, the High and Low Risk Ventilation System located on top of the WDA facility, the building exhaust air HEPA filter bank, exhaust stack, and equipment used to monitor the effluent discharge air from the filter bank to the outside environment.

c. Phase III work includes all dismantlement and demolition activities to remove and dispose of the above ground waste lines, walls, roof, and decontaminated internal tanks and equipment too large to remove with the building intact, includes all remaining activities performed after the building "environmental envelope" has been breached (i.e. ventilation shutdown and loss of negative pressure).

d. Phase IV work includes decontamination, dismantlement, demolition, and disposal activities necessary to remove the WD/WDA pads, subsurface tanks, foundations, and associated contaminated soils.

e. Phase V work includes all activities necessary to accomplish utilities isolation, decontamination, and removal of all equipment, waste containers, and tanks to dismantle and demolish Building 23, its pads, and foundations.

f. Phase VI work includes decontamination, dismantlement, demolition, and disposal activities necessary to achieve dismantlement and demolition of Building ATS, its pads, foundations.

1.2 REFERENCES

A. Action Memorandum, Building WD Project Removal Action, Mound Plant, Miamisburg, Ohio (September 2001) Final (Revision 2)

B. Appendix A Reconnaissance Level Characterization Report

C. Appendix L MD-10286, Mound Safety and Hygiene Manual (Selected Sections)

D. Appendix M MD-10167, Radioactive Waste Generating Procedure (Selected Sections)

E. Appendix N MD-80045, Mound Methods Compendium (Selected Section)

F. Appendix O MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Materials, April 2002

1.3 SUBMITTALS

A. The Subcontractor shall submit an Integrated Work Control Package for each task to be performed. This can be one work control package with sections on each task or a series of work control packages. The Subcontractor shall follow the format specified in Attachment I.

B. Work Packages for activities that fall under Phases I, IV, and V will be reviewed and approved by the Buyer and made available to the USDOE, USEPA and the OEPA on request. Thirty copies of the submittal are required. The Subcontractor shall provide 10 copies of the first submission for review, and 20 copies of the final approved Work Package.

C. Phases II, III, and VI Work Packages will be reviewed and approved by the Buyer, USDOE, USEPA and OEPA. Forty copies of the submittal are required. The Subcontractor shall provide 20 copies of the first submission for review and 20 copies of the final approved plan.

1.4 SEQUENCING/SCHEDULING

A. Phase I, IV, and V Work Packages, requiring Buyer approval, shall be submitted 30 calendar days prior to needing the approved document.

B. Phase II, III, and VI Work Packages, requiring Buyer, USDOE, USEPA and OEPA's approval, shall be submitted 6 months prior to needing the approved document.

1.5 READINESS EVALUATION

A. The Integrated Work Control Package shall include a Readiness Evaluation to determine the Subcontractor's "state of readiness" to start the work described in the Package. The Readiness Evaluation form (Attachment II) shall be completed, indicating items applicable to the Work Package and submitted with the Work Package. The form is a general listing of questions, which may or may not apply (n/a) to the current work package. The Readiness Evaluation Form will be reviewed by the Buyer's Technical Representative for completeness. Prior to the commencement of work, the Buyer's Technical Representative will validate those topics listed on the Readiness Evaluation form with the Subcontractor to ensure "readiness" to start the work. An example of the demonstration of "readiness" includes: a) requiring training dates for employees to insure training is current, b) a listing by chemical of MSDS sheets and c) verification of a "walk-through" of the work zone to insure everything is prepared for work to commence.

END OF SECTION

SECTION 01500

FACILITIES, CONTROLS, AND PROJECT BOUNDARIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Support Facilities, Temporary Utilities, Protection of the Work Area, Site Access, Traffic and Pedestrian Control.

1.2 RELATED WORK

A. Section 01110 Safety and Health

B. Section 01190 Environmental Compliance

C. Section 01550 Waste Management

D. Section 01900 Utility Isolation and Removals

E. Section 01920 Fire Protection/Suppression Systems

F. Section 16000 Electrical

1.3 REFERENCES

A. Appendix B WD Project Drawings

1. Drawing No. WD001, WD Project Site Location

2. Drawing No. WD002, WD Project Mechanical Utilities Isolation

3. Drawing No. WD006, WD Project Demolition Subcontractor Route

B. Appendix P Photographs, WD

C. Appendix Q Photographs, Building 23

D. Appendix R Photographs, Building ATS

E. American National Standards Institute (ANSI) A225.1, 1987, Manufactured Home Installation.

F. ANSI/NFPA 70-1997, National Electrical Code (NEC-2002).

G. NFPA 501A, 1992, Manufactured Home Installation, Sites, and Communities.

H. ANSI D 6.1, Manual on Uniform Traffic Control Devices for Streets and Highways.

1.4 SUBMITTALS

A. Facility Location Plan, see Section 3.1.A

B. Access Monitor Identification, see Section 3.4.A

C. Traffic Control Plan, see Section 3.5.A

PART 2 PRODUCTS

2.1 MATERIALS

A. Barrier Fence: 6 feet high, "free-standing" chain link fence panels, National Rent-A-Fence Co. or approved equal.

PART 3 EXECUTION

3.1 SUPPORT FACILITIES

Subcontractor shall:

A. Submit for approval, a mobilization plan indicating the location and layout of temporary facilities to be brought on-site; including the use of trailers within the subcontractor's work area. Should the Subcontractor choose to use trailers; maintenance of the units will be the responsibility of the Subcontractor.

B. Provide a shower and change facility that includes clean/dirty change areas, lockers, and storage for clean/dirty protective clothing. The shower and change areas will be also be utilized by the Buyer.

C. Provide the necessary janitorial service for all facilities within the designated project site.

D. Locate trailers a minimum of 35 feet clear of existing buildings and at least 10 feet clear from fire hydrants and fire department connections.

E. Provide a platform, stairs, and handrails at each exterior door of trailers. Platforms shall be level with the trailer floor. Platforms and steps shall have a

non-skid surface.

F. Anchor and support the trailers to prevent sliding and overturning according to ANSI A225.1 and NFPA 501A. A Buyer-supplied Excavation/Soil Disturbance permit will be required. See Section 01110 Safety and Health, for further details.

G. Provide portable fire extinguishers at each trailer egress that are properly mounted and clearly identified.

H. Support structures or structural attachments shall not interfere with any exit necessary for life safety or fire lanes.

I. Erect temporary facilities (trailers, portable structures, fabricated temporary storage buildings, etc.) with approval of the Buyer.

J. The location of portable buildings intended for occupancy or storage shall minimize fire exposure, allow Fire Department access, and conform to the following requirements:

1. Life Safety Code- NFPA 101 " Life Safety Code" Business Occupancy Class shall be used for the arrangement of corridors, hallways, exits and fire alarms, doors, and locks.

2. Exits and Emergency Lighting - any normally occupied unit, such as one used for an office, shall have two exits. These exits shall be clear of all obstructions and marked with proper exit signs.

3. Electrical Requirements- All electrical wiring shall be installed to met the NEC 2002, NFPA 70.

4. All electrical fixtures and boxes shall be physically secured.

5. Lighting levels shall meet or exceed the lighting standards specified in requirements contained in 29 CFR 1926.56.

6. Electrical Panels, breakers and disconnects shall be labeled and not blocked.

7. Portable Extinguishers- Portable fire extinguishers shall be provided in each unit, with the number, type, and size in accordance with NFPA 10.

8. Underwriters Laboratories Inc. (UL) labeled Class A ground-fault interrupters shall protect outlets on the exterior and/or in any other location where there is a potential for contact with water.

9. Each unit shall have an individual, external disconnect switch, unless the installed electrical panel has a single main disconnect.

10. Storage of materials beneath portable structures is prohibited.

3.2 TEMPORARY UTILITIES

A. Buyer shall provide temporary disconnect breakers to use existing plant utilities. Tie-ins and disconnects to existing systems will be performed by the Subcontractor. Subcontractor shall remove temporary utilities after final disconnection from site utilities.

1. Electric power: Utility Isolation and Removal (Section 01900), Electrical (Section 16000), will provide for temporary electrical power. Perform temporary electrical work in accordance with ANSI/NFPA 70 (NEC) requirements.

2. Water: Utility Isolation and Removal (Section 01900) describes access for obtaining temporary water service. Install reduced-pressure backflow preventers for all temporary water lines.

3. Subcontractor shall be permitted to tie into the Buyer's telephone cables to the extent they are available. Subcontractor shall be responsible for all connections, maintenance, and telephone service for use by the Subcontractor.

4. The Subcontractor will provide chemical toilet and hand washing facilities to be located within the Subcontractor's compound. Facilities must conform to 29 CFR 1926.51. Dispose of wastewater offsite.

3.3 PROTECTION OF THE WORK AREA

Subcontractor shall:

A. Provide flags, barricades, and signs per OSHA 29 CFR 1926, Construction Regulations for job site, storage areas, and work areas.

B. Install compound fencing per Drawing No. WD001, WD Project Site Location, utilizing fencing specified in this section. This fence is not classified as a security.

C. Make provisions to protect the project during adverse weather conditions and insure continuation of the project during winter months without stoppage and at no additional expense to the government. On any project where any adverse weather conditions are anticipated, the Subcontractor shall prior to the start of activities submit to the Buyer's Technical Representative a plan for providing

weather protection.

D. Post a sign providing Subcontractor's name, telephone number, project title, and contract number for storage areas not located within the Work site.

E. Temporary waste storage areas shall be secured to prevent unauthorized waste from being placed the waste containers as discussed in section 1550 Waste Management.

3.4 SITE ACCESS, TRAFFIC AND PEDESTRIAN CONTROL

A. Subcontractor shall control access to Project Site

1. For access control to the Mound Site including equipment, Subcontractor personnel, and materials, the subcontractor will enter and egress through Guard Post 8, see Drawing No. WD006. The Subcontractor is responsible for controlling access to the project site and monitoring a radio for emergency notification. The Subcontractor's project Access Monitor may have collateral duties, (i.e. recordkeeping.)

2. The Subcontractor's Access Monitor will maintain a list of personnel approved by the Buyer. Personnel not on the approved list must obtain permission from the Buyer prior to site entry.

3. Access by trained site workers will be controlled through the Subcontractor's Access Monitor.

4. Other than trained site workers and designated DOE representatives, personnel entering the Subcontractor's compound are considered visitors. Designated escorts, approved by the Buyer, shall accompany visitors at all times. A log will be kept by the Subcontractor's Access Monitor to record visitor entry and exit from the area.

5. Oversight personnel shall conform to the requirements of site workers.

6. The Buyer must approve access to the site after normal working hours. The Subcontractor shall provide written notice to the Buyer 48 hours prior to need to access site after normal working hours.

7. Vehicles, equipment and personnel access to the project site will be controlled through the Buyer's access gate at Guard Post 8 off Mound Road. Entrance and exit of personnel will be through a portal with a badge reader, allowing access at numerous portals at the plant; however, the primary entrance will be Guard Post 8. The Subcontractor will be issued visitor badges for the badge readers at the portals. (See Drawing No. WD006.)

3.5 TRAFFIC AND PEDESTRIAN CONTROL

Subcontractor shall:

A. Develop a traffic control plan to identify required road closures and all potential impediments to emergency vehicle traffic. Submit plans for approval 30 days prior to implementation. Buyer approval is required prior to implementation of the plan.

B. Provide the flagging, barriers and signs required to close the road.

NOTE: Potential traffic interruptions are possible on the plant road that is located south of the Subcontractor's Compound passing between Buildings HH, WD, and waste shipment area.

C. Provide traffic control that conforms to ANSI D 6.1, Manual on Uniform Traffic Control Devices for Streets and Highways.

D. Provide and maintain pedestrian walkways and building access during the project. The work area shall be posted properly with applicable signs.

E. Provide structurally sound temporary crossing walkways for pedestrians over open excavations.

F. Provide proper protection in front of open trenches adjacent to vehicle traffic.

G. Keep plant road surfaces to the Subcontractor's compound cleaned of any debris caused by the subcontractor's vehicles.

END OF SECTION

ORIGINAL COPY

SECTION 01550 – ATTACHMENT I

ORIGINAL COPY

SUMMARY INFORMATION

SHIPPING CONTAINER ID #		☐ NON-WASTE RADIOACTIVE MAT'L	WASTE TYPE ☐ LLW ☐ MIXED ☐ TRU		CONTAINER TYPE ☐ DRUM ☐ BOX ☐ SEALAND ☐ RAIL ☐ OTHER ☐ NONE	
PROFILE NO(S) & REVISION(S)		WASTE DESCRIPTION/COMMENTS				
PROJECT	WASTE VOLUME	PACKAGE CODE	TARE WT (KG)	GROSS WT (KG)	GROSS WT (LBS)	NET WT (KG)

RADIONUCLIDE	CURIES	nCi/g	SCALE NO.		NO. OF OVERPACKED CONTAINERS	
			WEIGH DATE			
					TID NO./TYPE	DATE
			RQ			
			HM			
			NO			

☐ Radionuclide continuation page attached

☐ Container DOT appropriate for RAD contents (WM Core Team Verified)

(Bldg. 22/31 Metal Containers Only)

WASTE CHARACTERIZATION AND PACKAGING

The waste described on this form has been generated, characterized, and packaged in accordance with the manuals/procedures listed. Manual/Procedure(s): _____

_____ _____ HP No. _____

Package Custodian

Date _____

(The Package Custodian is the individual accountable for maintaining control over the waste package described on the input form).

WASTE COMPLIANCE SECTION

THIS CONTAINER IS FROM AN ACCEPTABE LOT. THE ABOVE DATA HAS BEEN REVIEWED AND FOUND ACCEPTABLE

_____ _____ _____

Waste Compliance/Certification Representative | HP No. | Date

RADIOLOGICAL OPERATIONS SECTION

PACKAGE IS WITHIN DOT EXTERNAL CONTAMINATION AND RADIATION LIMITS
(SEE MD-80036, OPER. 20015)

HIGHEST WIPE		INITIAL		HIGHEST NET READING	MR/HR @ CONTACT	MR/HR @ 1m	INSTRUMENT NO.
ALPHA (DPM/100 CM^2)				GAMMA RATE			
BETA (DPM/100 CM^2)				NEUTRON RATE			
TRITIUM (DPM/100 CM^2)				TOTAL RATE			

_____ _____ _____ _____

RSDS # | Rad. Con. Technician | HP No. | Date

NOTE: These surveys should be performed at the time of shipment preparation.

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RADIOACTIVE WASTE INPUT FORM

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ORIGINAL COPY CONTAINER INSPECTION AND LOADING INFORMATION **ORIGINAL COPY**

WASTE CONTAINER PRE-USE INSPECTION AND PREPARATION

LINER	(S/N)	**DRUM**	(S/N)	**BOX**	(S/N)	**OTHER**	(S/N)
26 Gal Poly		30 Gal Metal		LSA White		Rail Car	
50 Gal Metal		55 Gal Metal		TRU White		Welded Box	
Other		Other		Sealand		Other	
Accept for use (see criteria below)							
	Init./Date		Init./Date		Init./Date		Init./Date

Container Acceptance Criteria: Internally clean; Empty; No significant defects; Lid/closure OK.

Container Preparation: Yellow Bag _____ Absorbent _____

SOURCE BLDG./ROOM	**WASTE LOADING LIST AND WASTE DESCRIPTION (PRINT – USE BLACK INK)**	**INITIALS**	**HP NO.**	**DATE**

☐ Loading List continuation page attached.

CONTAINER DATA:		DATE		TIME	**ISOTOPES:**
Liner Lid RTV'd.					☐ Tritium only
Container Closed					☐ Tritium + Alpha
Offgas Check:					☐ Alpha only
☐ Pass ☐ Fail	RCT		HP No.		

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SECTION 01550 - Attachment II
Radioactive Surface Contamination Limits for Unrestricted Release

Radionuclides [2]	COLUMN I [8]	COLUMN II	COLUMN III
	Direct Total or Average Total [3,4] (Fixed + Removable) (dpm/100 CM^2) [1]	Maximum Total [4,5] (Fixed + Removable) (dpm/100 CM^2) [1]	Removable [4,6] (dpm/100CM^2) [1]
Transuranics, 1-125,1-129, Ra-226, Ac-227, Ra-228, Th-228, Th-230, Pa-231	100	300	20
Th-Natural, Sr-90, 1-131,1-133, Ra-223, Ra-224, U-232, Th-232	1,000	3,000	200
U-Natural, U-233[10], U-235, U-238, and associated decay products, alpha emitters.	5,000	15,000	1,000
[7] Beta-gamma emitters (radionuclides with decay modes other than alpha emission or spontaneous Fission) except Sr-90 and others noted above.	5,000	15,000	1,000
Tritium, all forms (surface and sub-surface)	N/A	N/A	10,000[9]

NOTES:

1. As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute measured by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

2. Where surface contamination, by both alpha and beta-gamma emitting radionuclides exists, the limits established for alpha and beta-gamma-emitting radionuclides should apply independently.

3. Measurements of average contamination should not be averaged over an area of more than 1 m^2. For objects of less surface area, the average should be derived for each object.

4. The maximum contamination level applies to an area of not more than 100 cm^2.

5. The average and maximum dose rates associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/h and 1.0 mrad/h respectively, at I cm.

6. The amount of removable material per 100 cm^2 of surface area should be determined by wiping an area of that size with a dry filter or soft absorbent paper, applying moderate pressure, and measuring the amount of radioactive material on the wiping with an appropriate instrument of known efficiency. When removable contamination on objects of surface area less than 100 cm^2 is determined, the activity per unit area should be based on the actual area and the entire surface should be wiped. It is not necessary to use wiping techniques to measure removable contamination if direct scan surveys indicate that the total residual surface contamination levels are within the limits for removable contamination.

7. This category of radionuclides includes mixed fission products, including Sr-90, which is present in them. It does not apply to Sr-90 that has been separated from other fission products or mixtures where the Sr-90 has been enriched.

8. The RCT uses Column I as the limit for a direct survey result used as part of the survey to release objects as not contaminated. Averaging of contamination levels on an object must be performed by the RPOC as described in MD-80036 Operation 10002.

9. Tritium activity value is as observed by liquid scintillation.

10. BWXTO developed a position paper to add U^{233} to this table, Surface Contamination Values for Uranium-233, dated June 24, 1999.

SECTION 01550

WASTE MANAGEMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for handling, segregation, packaging, and transfer of wastes generated by the decontamination and demolition of buildings.

B. Wastes generated during demolition of buildings must be properly characterized, packaged, and documented for transfer to Mound storage facilities pending offsite shipment for disposal. The majority of waste generated will be low-level radioactive waste, but small volumes of transuranic, hazardous, and mixed wastes are also anticipated. Some selected items may be surveyed and decontaminated (if necessary) to support free release.

C. The Subcontractor is responsible for packaging, transportation and documentation of wastes. The Buyer is responsible for on-site storage, disposal of wastes, and for oversight of waste operations. The Subcontractor is responsible for temporary waste storage requirements until the documentation is complete and the Buyer accepts transfer of the waste.

1.2 RELATED SECTIONS

A. Section 01150 Work in Radiologically Contaminated Areas

B. Section 01190 Environmental Compliance

C. Section 01210 Facility Surveillance and Maintenance

D. Section 01460 Integrated Work Control

E. Section 01500 Facilities, Controls, and Project Boundaries

F. Section 01900 Utility Isolation and Removals

G. Section 01915 Electrical Equipment Removal

H. Section 01920 Fire Protection/Suppression Systems

I. Section 01925 Secondary Ventilation Systems Demolition

J. Section 01945 Below Grade Removals

1.3 SUBMITTALS

A. Monthly waste generation report (for record). Information on waste generated during the previous month, including waste volumes, characterization analysis, waste types, serial numbers of containers, and date transferred to Buyer. Subcontractor shall submit report by the second working day of each month.

B. Two-month waste debris production look-ahead (for information). Projections for waste volumes expected to be produced over the next two months, and estimates of numbers and types of containers required. Subcontractor shall submit report by the second working day of each month.

Note: The projected number of containers determined by the Subcontractor will be used to procure the required number and types of containers.

C. Records of transuranic waste packaging (for record) including detailed waste descriptions for each container, and a photographic record (as described in Section 3.2.B).

D. Records of scale calibrations (for record).

1.4 NOTIFICATIONS

A. Requests for empty containers (for information). Subcontractor shall make requests for new empty containers (LLW boxes, Type A boxes, Sealands, and drums) no later than two calendar weeks before they are required.

1.5 SEQUENCING / SCHEDULING

A. The Buyer will be responsible for storage of waste after removal from the project and transferred to the Common Waste Zone. The Buyer will also be responsible for transportation and disposal at suitable disposal sites. The Subcontractor shall provide a two-month waste generation look-ahead each month to allow the Buyer to plan Waste Management activities associated with these responsibilities.

B. The Buyer will be responsible for transfer and storage of waste placed into 55-gallon drums or smaller containers. The Subcontractor shall schedule pickup of the drums on weekly basis to allow the Buyer to plan Waste Management activities associated with these responsibilities.

1.6 REFERENCES

A. 49 CFR 173, Department of Transportation, Shippers-General Requirements for Shipments and Packaging

B. MD-10167, Radioactive Waste Generating Procedure

C. OPA920003, Nevada Test Site Waste Acceptance Criteria, Revision 3

D. MD-80045, Mound Methods Compendium

E. MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Material, April 2002

F. Appendix B WD Project Drawings

1. Drawing No. WD003, WD Project Common Waste Zone

1.7 DEFINITIONS

A. Bulk waste - waste transferred without outer packaging.

B. Bulk packaging - for solids, waste packaging with capacity greater than 450 Liters (119 gallons) and a maximum net mass greater than 400 kg (882 pounds).

C. Hazardous Waste - wastes that exhibit any of the characteristics of a hazardous waste (ignitable, corrosive, reactive, toxic) as specified in RCRA Subpart C (40 CFR 261.20-261.24), or are listed in RCRA Subpart D (40 CFR 261.30-261.33), or are declared to be hazardous on the basis of process knowledge.

D. Industrial waste - Wastes releasable from the Mound Site and meeting definition of RCRA Subtitle D: suitable for disposal in sanitary landfill.

E. Low-level Radioactive Waste (LLW) - Waste with radiological contamination exceeding free release levels, but below transuranic waste levels.

F. Low Specific Activity (LSA) - radioactive material with limited specific activity that satisfies the descriptions and limits set forth in 49 CFR 173.403.

G. Mixed Waste - Hazardous waste that is also radiologically contaminated.

H. Radioactive Waste - Any material having a specific activity greater than 70 Bq per gram (0.002 microcuries per gram), or exceeding SCO thresholds.

I. Specific Activity - Specific activity of a radionuclide means the activity of the radionuclide per unit mass of that nuclide. The specific activity of a material in which the radionuclide is essentially uniformly distributed is the activity per unit

mass of the material.

J. Surface Contaminated Object (SCO) - a solid object which is not itself radioactive but which has radioactive material distributed on any of its surfaces. A more complete definition, including definition of classes of SCO can be found in 49 CFR 173.403.

K. Transuranic Waste - Radioactive wastes > 100 nCi/g of alpha-emitting isotopes with a molecular weight greater than 92, and a half-life greater than 20 years.

L. Free Release Levels -– see MD-80043 OPS 400

1.8 DELIVERY, STORAGE, AND HANDLING

A. The Subcontractor shall, after proper documentation, remove all packaged wastes and bulk construction debris from the work site. Wastes will transported to the identified Common Waste Zone, shown in Drawing No. WD003, by the Subcontractor, or directly transported by the Buyer depending on the type of waste and container.

Note: No waste will be allowed to leave the construction site without proper documentation.

B. The Common Waste Zone will be accessible by both the Subcontractor and the Buyer.

C. The Buyer will:

1. Deliver QA-accepted containers as requested by the Subcontractor to support project waste generation.

2. Pick up identified bulk wastes from the Common Waste Zone, after certification by the Buyer that waste, packaging, and documentation have been completed.

3. Pick up hazardous waste containers and identified waste streams from the construction site, after certification by the Buyer that the waste characterization, packaging, and documentation have been completed.

D. The Subcontractor shall:

1. Segregate waste streams as specified in work packages, package identified waste, complete documentation, and deliver wastes and construction debris to the Buyer at the Common Waste Zone.

2. Stage bulk wastes at the Common Waste Zone, per the Buyer's direction, in a manner meeting all requirements of Section 01190 Environmental Compliance, regarding control of runoff and air emissions.

PART 2 PRODUCTS

2.1 MATERIALS

A. Subcontractor shall provide:

1. Absorbent material for packaging of radioactive waste in boxes or Sealands (Florco, PetroSorb, or buyer-approved equivalent).

2. Solidification agents (such as Aquaset, Petroset, No Char) for treatment of liquid radioactive wastes.

3. Locks for controlling and securing in-process containers.

4. Dumpsters and/or rolloffs for storage and disposal of industrial wastes.

5. Storage tanks for collection and staging of wastewater.

B. Buyer will provide:

1. QA-accepted containers for packaging of radioactive waste, hazardous wastes, and mixed wastes. Typical sizes of waste containers are:

a. Low Level Waste (LLW) containers.

(1) Strong, tight, steel boxes with lids. 79" L x 51" W x 43" H.

(2) Sealand containers. 20' L x 8' W x 8' H.

b. Type A containers.

(1) Steel 55-gallon drums.

(2) Steel boxes with bolt-down lids. 88" L x 44" W x 43" H.

c. Type-A containers for TRU waste packaging.

(1) Vented steel 55-gallon drums.

(2) TRUPACT II standard waste box. 71" L x 54" W x 37" H.

d. Non-radioactive waste.

(1) Standard steel or Poly 30-gallon drums.

(2) Standard steel or Poly 55-gallon drums.

2.2 EQUIPMENT

A. Subcontractor shall provide:

1. Forklifts, trucks, cranes, or other appropriate equipment designed to safely move waste containers and bulk wastes from job site to the Common Waste Zone.

2. Dump trucks, loaders, or other appropriate equipment designed to safely move bulk wastes and construction debris from job site to the Common Waste Zone.

3. Scales for weighing waste boxes (capacity no less than 8000 pounds). Scales must have a certification no more than 60 days old, upon arrival at the Mound Site, thereafter; the scales shall be calibrated annually with National Institute of Standards and Technology (NIST) standards, to certify accuracy of at least ± 2%. Upon completion of scale calibrations by the Subcontractor, records of scale calibration shall be submitted to the Buyer.

PART 3 EXECUTION

3.1 PREPARATION

A. Roles and Responsibilities

1. Subcontractor responsibilities include:

a. A Subcontractor full-time Waste Management Coordinator without collateral duties shall be required for this project. The Buyer shall approve the Subcontractor's Waste Management Coordinator. Additionally, the Waste Management Coordinator shall possess the following:

(1) Four-year degree in Environmental Sciences or Civil Engineering related fields or equivalent work experience, subject to Buyer approval.

(2) Prior experience packaging and documenting waste streams consisting of low level radioactive, transuranic, hazardous, and

mixed wastes.

(3) Prior experience generating waste profiles.

(4) Prior experience with Department of Transportation (DOT) regulations for over the road and rail waste shipments.

(5) Knowledge of Federal, state, and local government site regulations for packaging and shipment of waste.

(6) Documented experience with radiological waste disposal facilities.

(7) Prior experience generating sample and analysis plans.

b. Compliance with all regulatory requirements, including Federal, State, and Local Government.

c. Document and submit to Buyer data which documents that waste complies with waste acceptance criteria (WAC) of receiving sites (See Attachment I; radioactive waste input form). Assist the Buyer to minimize costs by efficiently packaging wastes, and where possible, take advantage of DOT packaging exceptions when available.

d. Projection of waste types and volumes to be generated.

e. Planning, scheduling, and coordination for waste to be dispositioned.

f. Assurance that personnel have adequate training and experience to complete assigned tasks.

g. Verification that only acceptable wastes are placed in waste packages and that no prohibited items are loaded into waste containers.

h. Ensures the waste documentation is completed and adequate for acceptance by the Buyer.

2. The Buyer's Waste Coordinator, through the Buyer's Technical Representative, is responsible for assuring that the Subcontractor adequately segregates, packages, and documents for disposal all waste, rubble, and debris produced by the project. Waste Coordinator responsibilities include:

a. Provide clarification on questions of waste and debris characterization, classification, packaging requirement, Buyer's Waste Management (WM) requirements, and Department of Transportation (DOT) issues.

b. Ensures that adequate numbers of appropriate QA-accepted containers are available on the job site.

c. Schedules waste transfers from the construction site to WM storage facilities.

d. Verifies adequacy of waste characterization and concurs with waste package selection. Verifies that documentation is adequate for waste disposal.

e. Maintains waste disposal records for the project.

f. The Buyer's Waste Coordinator will be involved in planning and oversight of waste producing and waste documentation activities.

g. All regulatory interface is to be documented through the Buyer.

B. Waste Characterization

1. Subcontractor's Individual Work Packages, as required in Section 01460, shall include a project-specific Waste Management Plan. The plan should include estimates of types and volumes of waste expected to be generated, and a waste segregation and packaging plan.

2. Segregation requirements vary depending on chemical and radiological characteristics of the wastes. Requirements for each waste type are included under Paragraph 3.2.

C. Waste Identification and Labeling

1. The Subcontractor must complete Buyer's ML-7042X, Radioactive Waste Input Form, before packaged radioactive waste can be transferred to the project Common Waste Zone. (See Attachment I - radioactive waste input form).

2. The Subcontractor must weigh each waste container. The waste-containers weight shall be clearly marked, in pounds and kilograms, on each waste container. For Sealand containers, in lieu of weighing, the Subcontractor shall provide the approximate net weight of the contents.

3. Waste containers will be marked or labeled by the Subcontractor, with oversight by Buyer, prior to removal from the work site.

4. A transfer tag, as required by Radiological Controls, shall be attached to

containers by the Subcontractor prior to removal from the work site.

D. Waste Segregation

1. The Subcontractor must segregate wastes by type (radioactive, transuranic, hazardous, mixed, industrial). Records must be maintained documenting the technical basis for segregation of waste streams. Records will be provided to the Buyer upon request.

2. The Buyer's Waste Coordinator will review and monitor identification of waste types, segregation of waste streams, packaging, labeling, marking, and storage requirements.

3. Paragraph 3.2 lists wastes anticipated during building D&D activity. If unexpected or unusual wastes are encountered during the project, contact the Buyer's Waste Coordinator for guidance and instructions.

3.2 APPLICATION

A. Low-level radioactive waste

1. The majority of the waste generated during the decontamination and demolition of buildings will be low-level radioactive waste (LLW).

NOTE: Low-level radioactive waste is contaminated with radioactive material above free release levels, but below transuranic (TRU) levels (i.e., less than 100 nCi/g or alpha-emitting isotopes with a molecular weight greater than 92, and a half-life greater than 20 years).

2. Waste Segregation / Packaging - The Subcontractor must make every effort to segregate and package waste per an existing waste profile. Prior to transfer to the Common Waste Zone, all LLW requires a determination that the waste form is acceptable under a waste profile at Envirocare or NTS. Radiological contamination (isotopes and activities, surface vs. bulk contamination) must be identified and documented for each waste package, and for each bulk waste stream. In addition, a physical description of the waste is required.

3. Packaging and disposal options are dependent upon radiological characterization, as summarized below:

a. Bulk wastes may be shipped via rail to Envirocare of Utah. Waste destined for Envirocare may not require packaging, but must be size reduced to less than 10 inches in one dimension. Maximum size for

items disposed of at Envirocare is 8 feet x 8 feet x 10 inches. Size reduction, as required, shall be performed by the Subcontractor prior to movement of bulk wastes to the Common Waste Zone.

b. Wastes that cannot be shipped in bulk via rail (due to size or non-conformance with Envirocare waste profiles) must be packaged in containers in accordance with DOT regulations. Packaged waste will require more formal documentation as specified in sampling and analysis plans with data quality objectives (per MD-10167, Op. 428 and MD-80045, Q-017).

B. Transuranic waste

1. As projected waste streams approach transuranic (TRU) levels, the Subcontractor will be required to determine conclusively whether wastes should be classified as LLW or TRU. Wastes with higher levels of radiological contamination will require more rigorous analysis and documentation to select a suitable segregation option.

C. Hazardous waste/Mixed waste

1. Limited amounts of hazardous or mixed waste will be encountered during demolition efforts. Hazardous wastes meet the definition in 40 CFR 261.3 (Resource Conservation and Recovery Act, RCRA).

2. Mixed wastes are hazardous wastes, which are also radioactively contaminated.

3. Expected sources of hazardous and/or mixed wastes include but are not limited to: lead joints in cast iron pipes, lead bricks that cannot be recycled, lead lined tanks, and lead batteries (e.g. wet cells for the fire alarm systems). Other possible sources of hazardous wastes include liquids and sludges from wastewater collection sumps and tanks.

4. The Subcontractor shall plan operations to avoid cross contamination of hazardous and radioactive wastes.

5. Hazardous wastes shall be packaged for transfer to the Buyer.

6. Subcontractor will determine proper waste categorization for compliant segregation and packaging, and designation of land disposal requirements. This will be accomplished through a Buyer approved sampling and analysis plan.

7. During the life cycle of a project, many materials that are used at the site may

contain hazardous compounds as listed under OSHA, USDOT and/or USEPA hazardous chemical lists. Hazardous materials may be fuels, solvents, paints, adhesives, lubricants, sealers/epoxies binders, additives, engine fluids, and so on. These materials must be used, managed, stored, transported and disposed of in accordance with applicable regulations. When these hazardous materials are no longer useable, or recyclable, or become contaminated with other materials rendering it useless, the material must be managed as waste and properly characterized for solid and hazardous waste considerations.

8. Excess materials are items that are left over from activities that required their use, and no longer meet specifications, or are not returnable in their present state, such as a bucket of opened paint. For these materials, reuse or recycle should be the first option for disposal, however, if the material cannot be reused, then it must be characterized and evaluated for solid and hazardous waste considerations. Like the hazardous materials listed above, use, management, storage, transportation and disposal must be in accordance with applicable OSHA, USDOT and USEPA regulations.

D. Toxic Substances Control Act (TSCA) wastes. Wastes regulated by TSCA include asbestos and polychlorinated biphenyls (PCBs).

1. Asbestos - Asbestos containing materials (ACM) are assumed to be radioactively contaminated, and will be disposed of at the Nevada Test Site (NTS). Upon generation, the Subcontractor must segregate friable asbestos waste from non-friable asbestos wastes. The Subcontractor must package friable asbestos separately, and friable asbestos may not be mixed with other wastes (pipes may be removed and disposed with friable pipe insulation). Non-friable asbestos may be mixed with other low-level radioactive wastes, but documentation for the package must include certification from a Certified Asbestos Abatement Inspector that the ACM is non-friable.

2. PCBs - Some fluorescent light ballasts may contain PCBs. If not labeled otherwise, all ballasts will be assumed to contain PCBs. The Subcontractor must separate ballasts from light fixtures, and have them surveyed for free release. Free releasable ballasts shall be packaged by the Subcontractor for transfer to Mound Hazardous Waste Management. Ballasts that cannot be free released, due to radiological contamination, shall be packaged by the Subcontractor for transfer to the Buyer. The transfer of the ballasts will require documentation on the radiological characterization of the material.

3. Mercury – Mercury-containing devices should be removed before building demolition. Items that may contain mercury are thermostats, switches, and process pumps. The Subcontractor should also be aware of potential for mercury in floor drains and sink traps in laboratory settings. Mercury or mercury-containing items shall be appropriately contained and labeled for

transfer to Mound Waste Management.

E. Industrial Waste

1. Standard Industrial Wastes (those materials meeting RCRA Subtitle D requirements) will be generated from support activities (office trash, packaging materials, etc.). The subcontractor shall collect and arrange for disposal of these wastes. Rolloffs and dumpsters are subject to surveys to verify the absence of radiological contamination. All rolloff containers must be surveyed by the Buyer and documented for release. Allow two working days for a rolloff survey.

2. Wastes generated in buildings are assumed to be radiologically contaminated, and cannot be disposed of in landfills unless surveyed for free release.

F. Liquid Waste

1. There are no options for offsite disposal of radioactive liquids. Disposal of free liquids is prohibited at both the Nevada Test Site and Envirocare.

2. The Subcontractor shall disposition all liquids in accordance with the Buyer's NPDES Permit (see Section 01460 Integrated Work Control).

   The Subcontractor shall disposition any liquids generated during the project as follows:

   a. For liquids documented by the Subcontractor to be neither radioactive nor hazardous wastes, discharge to plant Sanitary Sewer System with written approval from the Buyer.

   b. The subcontractor shall drum or containerize hazardous or mixed liquid wastes, for disposal by the Buyer.

   c. Glycol: The Subcontractor shall sample glycol wastes to determine radiological status. If glycol can be free released, they may be placed in closed-head drums and transferred to the Buyer. If glycol cannot be free released, the glycol shall be solidified and transferred to the Buyer for disposal as radioactive waste.

   d. Waste Oils: The Subcontractor shall support the sampling of waste oils to determine RCRA and radiological status.

      (1) If waste oils can be free released, the waste shall be placed in closed-head drums and transferred to the Buyer.

(2) If waste oils are determined to be hazardous waste, they shall be containerized and transferred to the Buyer.

(3) If waste oils are determined to be radiologically contained, they shall be solidified by the Subcontractor and transferred to the Buyer for disposal as radioactive waste.

(4) If waste oils are determined to be mixed waste, they shall be treated in accordance with the approved site Action Memorandum or if not covered in Action Memorandum containerized and transferred to the Buyer.

e. Sump/Tank Sludge:

(1) Sludges removed shall be solidified by the Subcontractor, and transferred to the Buyer. Packaging requirements will depend upon radiological characterization.

e. Radioactive Liquids:

(1) The Subcontractor will stage all wastewater in tanks supplied and maintained by the Subcontractor.

(2) The Subcontractor shall drum and solidify with Aquaset or Buyer-approved equivalent. The Subcontractor shall treat solidified wastewater so that the packaged waste is acceptable for disposal at NTS. Determination of acceptability will be by the Buyer's Waste Coordinator.

3.3 SPECIAL INSTRUCTIONS

A. Waste Minimization

1. The Subcontractor shall plan operations to minimize generation of radioactive wastes: unpackage all supplies and materials prior to introduction to Radiological Buffer Areas (RBAs). Waste packages shall be filled efficiently, so as to minimize void space in packages.

2. The Subcontractor shall plan operations to avoid cross contamination of radioactive and hazardous wastes.

B. Wastes with no path for disposal:

1. The Subcontractor shall take all steps necessary to avoid generation of wastes with no path for disposal. Examples of wastes with no path to disposal

include radioactive wastes contaminated with chelating agents and wastes containing free liquids.

2. The Buyer's Waste Coordinator shall identify processes that can potentially generate wastes with no path for disposal during review of work packages and oversight of work activities.

END OF SECTION

SECTION 01800 – Attachment I
Training Matrix

NO.	TRAINING TYPE	DURATION	FREQUENCY	PROVIDED BY	REQUIRED FOR
1	General Employee Training (GET)	4 hours	Every 2 years	Buyer	All contractors working on site or visiting for extended periods of time.
2	Contractor Safety	1 hour	Every 2 years	Buyer	All personnel working on site or visiting for extended periods of time.
3	General Employee Radiation Training (GERT)	1 hour	Every 2 years	Buyer	All personnel working on site or visiting for extended periods of time.
4	Radiation Worker II	2 days	Retrain Every 2 years, refresher between training	Buyer	All personnel entering radiological areas or when work activities are likely to encounter previously unidentified contamination.
5	Security Briefing (Read and Sign Agreement)	.5 hours	Once	Buyer	All personnel working on site or visiting for extended periods of time.
6	NTSWAC Orientation Course #070250	1.5 hours	Every 3 years	Buyer	Those directly involved in characterization and packaging of wastes destined for the Nevada Test Site (NTS).
7	Fall Protection and Prevention	1.5 hours	Once	SA	All personnel who access construction site
8	Hoisting and Rigging Awareness	.5 hours	Once	SA	Personnel not involved in actual oversight of hoisting and rigging activities.
9	Refrigerant Recovery	Note 1	Once	SA	Only for personnel involved in refrigerant recovery activities
10	Respirator Training	SD	Annually	SA	All personnel who wear respirators
11	AHERA Asbestos Contractor/Supervisor	40 hours	Once	SA	Personnel performing supervisory functions over asbestos abatement projects and workers.

NO.	TRAINING TYPE	DURATION	FREQUENCY	PROVIDED BY	REQUIRED FOR

12	AHERA Refresher Asbestos Contractor/Supervisor	8 hours	Annually	SA	Required for all asbestos contractor/supervisor personnel to keep training current and valid.
13	AHERA Asbestos Worker	32 hours	Once	SA	Workers performing asbestos abatement operation.
14	AHERA Refresher for Asbestos Workers	8 hours	Annually	SA	Workers performing asbestos abatement operation to keep training current and valid.
15	AHERA Asbestos Inspector/Management Planner	40 hours	Once	SA	Personnel inspecting and evaluating the job site for asbestos hazards
16	AHERA Asbestos Inspector/Management Planner Refresher	8 hours	Annually	SA	Required for all Asbestos Inspector personnel to keep training current and valid.
17	AHERA Asbestos Abatement Project Designer	24 hours	Once	SA	Personnel designing projects involving asbestos control or abatement issues.
18	AHERA Asbestos Abatement Project Designer, Refresher	8 hours	Annually	SA	Required for all asbestos related design (as defined above) to keep training current and valid.
19	Basic First Aid	4 hours Note 2	Every 3 years	SA	Each project is required to have at least one trained employee on site during working hours.
20	Cardiopulmonary Resuscitation (CPR)	4 hours Note 2	Annually	SA	Each project is required to have at least one trained employee on site during working hours.
21	Occupational Exposure to Blood Borne Pathogens	SD	Annually	SA	Anyone with potential exposure to blood due to injury.
22	Noise and hearing conservation	SD	Once	SA	All personnel working around equipment/machinery.
23	Back injury prevention	SD	Once	SA	All personnel performing lifting and task bending.

NO.	TRAINING TYPE	DURATION	FREQUENCY	PROVIDED BY	REQUIRED FOR
24	Confined Space Entry General	2 hours	Once	SA	All personnel entering a confined space and/or serving as an attendant. NOTE: Must

					have both General and Attendant Training.
25	Confined Space Entry Attendant	2 hours	Once	SA	All personnel entering a confined space and/or serving as an attendant. NOTE: Must have both General and Attendant Training.
26	Lead Awareness	1 hour	Once	SA	Personnel who may be exposed to Lead.
27	Beryllium Awareness	1 hour	Once	SA	Personnel who may be exposed to Beryllium.
28	Hoisting and Rigging Awareness	8 hours	Every 2 years	SA	All personnel directly involved or supervising hoisting and rigging activities.
29	Flagman Qualification	2 hours	Every 2 years	SA	Personnel performing construction flagging operations.
30	Mobile Crane Operations	4 hours	Every 2 years	SA	Personnel operating mobile cranes.
31	Vehicle-Mounted Elevating and Rotating Work Platforms	SD	Once	SA	Personnel operating a bucket truck
32	Boom Supported Elevating Work Platforms	SD	Once	SA	Personnel operating boom supported aerial lifts.
33	Construction and Demolition Operating/Digger Derrick	SD	Once	SA	Personnel operating a digger derrick
34	Self Propelled Elevating Work Platforms	SD	Once	SA	Personnel operating Scissors Lift
35	Manually Propelled Elevating Aerial Platforms	SD	Once	SA	Personnel operating an Aerial Lift
36	Forklift Operator	SD	Once	SA	Any personnel operating forklifts.
37	OSHA Certified Construction Safety Outreach Program	30 hours	Once	SA	OSHA Competent Person training required for all contracts or equivalent experience. All sites must have at least one on site during work activities.

NO.	TRAINING TYPE	DURATION	FREQUENCY	PROVIDED BY	REQUIRED FOR
38	Hazardous Waste Operations and Emergency Response	40 Hours	Once	SA	Hazardous Waste Operations and Emergency Response per 29 CFR 1910.120

39	Hazardous Waste Operations and Emergency Response Refresher	8 Hours	Annually	SA	Hazardous Waste Operations and Emergency Response per 29 CFR 1910.120
40	Powder-Actuated Tools	Note 1	Once	SA/Tool Manufacturer	All personnel operating powder actuated tools, i.e., Hilti Guns require for each model operated.
41	Lockout/Tagout Worker Training	SD	As needed	SA	Personnel who work in or around an area where Lockout/Tagout protection is in place.
42	Lockout/Tagout Authorized Individual	4 hours	Once	SA	Personnel who will initiate the verification and company acceptance for work under the protection Lockout/Tagout.
43	Scaffolding Competent Person	N/A	Once	SA	Personnel supervising the erection and tagging of scaffolding.
44	Excavation Competent Person	8 hours	Once	SA	All projects involving excavation and trenching must have at least one competent person on site.
45	Fire Watch	SD	Every 3 years	SA	Personnel performing fire watch duties during hotwork activities.
46	Welder Training	SD	NA	SA	Mandatory for all welders.

1- Refers to special competency training tasks.

2- First Aid and CPR are included in the American Red Cross standard 8-hour course.

Buyer = BWXTO

SA = Subcontractor Arranged

SD = Subcontractor Determined

SECTION 01800

TRAINING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Requirements for Subcontractor employee training and records management.

1.2 GENERAL EMPLOYEE TRAINING (GET)

A. Approximately 4 hours of GET training is required for all Subcontractor and lower-tier subcontractor employees who may work in the plant for more than 10 working days or 14 calendar days in a period of one year. (Employees who require access for ten or fewer working days in a one-year period may be given a brief orientation and be escorted by Buyer's or Subcontractor's personnel on a case by case basis.)

1.3 ADDITIONAL REQUIRED TRAINING:

A. A listing of additional, job-specific training requirements are included in Attachment I Training Matrix.

1.4 TRAINING PROVIDED BY THE BUYER

A. Unless approval is granted by the Buyer to use alternate training sources, Subcontractor employees shall receive their required training from the Buyer to the extent such training is offered. The Buyer will maintain records of all training it provides. The Buyer will provide upon request, copies of attendance sheets, training cards or computer printouts to Subcontractors for their employees. It is the Subcontractor's responsibility to ensure that their employees receive refresher training as required.

Note: All scheduled training requires two weeks advanced notice, unless prior approval by Buyer.

1.5 TRAINING PROVIDED BY THE SUBCONTRACTOR

A. If the Buyer does not offer training required, the following information shall be maintained and provided to the Buyer:

1. The contents of the training material provided.

2. Documents which show that the instructor is qualified to teach the course based on work related experience and either (a) experience as a trainer or (b) successful completion of a "Train the Trainer" class.

3. Attendance sheets, certificates of completion, or training cards

4. Examination/Test documents and employee results.

5. Documentation showing course approval by Ohio Department of Health, where applicable.

END OF SECTION

SECTION 01900

UTILITY ISOLATION AND REMOVALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The required (electrical, telephone, security, alarm) utility systems isolations and relocations, the sequencing of all utility systems relocations, and the extent of the utility systems demolitions and removals from identified buildings. The present site utilities are shown in Drawing No. WD002, WD Project Mechanical Utilities Isolation.

1. Electrical utility systems included:

a. Electrical power disconnects from the HH Substation, E Substation, and Emergency Generator #1 to the buildings are found in the following drawings:

(1) E Substation - Drawing FSD910551, Sheet 12

(2) HH Substation - Drawing FSD910551, Sheet 16

(3) Emergency Generator #1 - Drawing FSD871697, Sheet 8

b. Electrical power isolation from the HH Substation, E Substation, and Emergency Generator #1 to the buildings shall be performed per the requirements of Specification Section 16000 Electrical.

c. The electrical supplies to the Building's Power Disconnect shall be considered temporary and performed per the requirements of Specification Section 16000 Electrical.

2. Telephone system

a. Isolate site phone system from buildings. The current site system provides for normal phone service in the building and "paging" from the plant system. The subcontractor must provide a means of communicating with workers in the building. Cell phones or two-way radios are acceptable (the frequency must not interfere with the buyer's systems).

b. Buyer will perform any necessary rerouting of telephone lines to

Building 23 and ATS. These telephone lines must be relocated prior to demolition of buildings.

3. Security system

   a. Isolate and remove designated security towers running over the 23 facilities' construction zone. The current system is supported by a series of service towers passing around and over Building 23. The Security System services the lower TFV facilities.

   b. Isolation of the Security system shall be a coordinated effort and produce minimal system down time.

   c. These lines must be relocated prior to demolition of buildings.

4. Alarm systems

   a. Fire protection/suppression system detection alarms (sprinkler and hose cabinet water flow alarms, valve manipulation alarms), reference Specification Section 01920 Fire Protection/Suppression Systems.

   b. High Risk Ventilation exhaust fan low flow alarm, reference Specification Section 01940 WD Ventilation System Dismantlement and Demolition.

   c. These lines must be relocated prior to demolition of buildings.

5. Remove previously abandoned miscellaneous exterior electrical cables as necessary to allow access for demolition of buildings.

6. Remove exterior (street) lights as necessary to allow access for demolition of buildings.

7. Remove existing electrical service poles as necessary to allow access for demolition once the attached service utilities are no longer required.

B. Mechanical utility systems as follows:

1. Steam supply system: Isolation of the steam system will be performed by the Buyer.

2. Condensate system: Isolation of the condensate system will be performed by the Buyer.

3. Domestic (potable) water system: Isolation of the potable water system

will be performed by the Buyer. The termination and plugging of potable water lines within and around the area adjacent to these buildings will be the responsibility of the subcontractor.

4. Supply (raw) water system: Isolation of the supply water system will be performed by the Buyer. The termination and plugging of Supply water lines within and around the area adjacent to these buildings will be the responsibility of the subcontractor.

5. Chill water (glycol) system: Isolation of the glycol system will be performed by the Buyer.

6. Plant compressed air system: Isolation of the compressed air system will be performed by the Buyer.

7. Plant breathing air system: Isolation of the breathing air system will be performed by the Buyer.

8. Sodium Chloride (Brine) system: Isolation of the brine system will be performed by the Buyer.

9. Sanitary sewer system: Isolation of the northern sanitary sewer system will be performed by the Buyer. The termination and plugging of sanitary sewer lines within and around the area adjacent to these buildings, and the west sanitary sewer system will be the responsibility of the subcontractor.

10. Storm drain (sewer) system: The termination and plugging of storm sewer lines within and around the area adjacent to these buildings will be the responsibility of the subcontractor.

11. Fire Mains: Isolation of the fire mains will be performed by the Buyer. The termination and plugging of fire lines within and around the area adjacent to these buildings will be the responsibility of the subcontractor.

12. Above-ground waste lines: The above-ground hot waste lines running from the south side of the access road to the facility are to be isolated and removed.

1.2 RELATED SECTIONS

A. Section 01110 Safety and Health

B. Section 01150 Work in Radiologically Contaminated Areas

C. Section 01190 Environmental Compliance

D. Section 01210 Facility Surveillance and Maintenance

E. Section 01300 Submittals

F. Section 01460 Integrated Work Control

G. Section 01500 Facilities, Controls, and Project Boundaries

H. Section 01550 Waste Management

I. Section 01915 Electrical Equipment Removal

J. Section 01920 Fire Protection/Suppression Systems

K. Section 01925 Secondary Ventilation Systems Demolition

L. Section 01940 WD Ventilation System Dismantlement and Demolition

M. Section 01945 Below Grade Removals

N. Section 16000 Electrical

1.3 REFERENCE MATERIALS

A. Appendix A – Reconnaissance Level Characterization Report

B. Appendix B – WD Project Drawings

1. Drawing No. WD002, WD Project Mechanical Utilities Isolation

2. Drawing No. FSD910551, E Substation, Sheet 12

3. Drawing No. FSD910551, HH Substation, Sheet 16

4. Drawing No. FSD871697, Emergency Generator #1, Sheet 8

C. Appendix P Photographs, Building WD

D. Appendix Q Photographs, Building 23

E. Appendix R Photographs, Building ATS

F. 29 CFR 1926, Subpart T-Demolition, Sections 850-860

1.4 SUBMITTALS

A. As noted in Section 01460 Integrated Work Control, it is the Subcontractor's discretion regarding the number of Work Packages submitted and utilized on this project. However, a Work Package shall be submitted that includes all Utility Isolation and Removal Activities, especially addressing work activity sequencing and method of accomplishment. The Work Package shall be in accordance with the general requirements of the subcontract specifications including Section 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with the Utility Isolation and Removal activities covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

B. Electrical, telephone, security, alarm system outages, permits, and/or Buyer support service requests shall utilize the Construction Daily Report as described in Section 01010 Summary of Work.

C. The Subcontractor shall submit a request for the appropriate electrical, telephone, security, alarm system outage(s).

D. The Subcontractor shall submit a request for the necessary special work permits (i.e., hot work permit, excavation permit, etc.) as required per the approved method of accomplishment.

E. The Subcontractor shall submit a request for a Radiation Work Permit(s) (RWP) if required per existing radiological postings.

F. The Subcontractor shall submit certified clean soil information on any utilized backfill material.

1.5 SEQUENCING

A. The designated electrical, telephone, security, alarm system isolation and utilities removal activities, in coordination with the Fire Protection/Suppression Systems activities in Section 01920, shall be considered the first segments of work to be performed by the Subcontractor. The intent of this work sequence is to isolate the project structure(s) from all currently existing plant utilities and thus eliminate the work hazards associated with performing demolition activities within an electrically and mechanically energized facility per OSHA Regulation 29 CFR 1926.850, Subpart T.

B. Work sequencing for Utility Isolation (as noted in these specifications) and Removals shall be coordinated with the Buyer:

1. Mechanical utility isolation sequencing shall be at the Subcontractor's discretion except for the following requirements:

a. The domestic (potable) water, chill water, and firewater systems shall be isolated by the Buyer and drained by Subcontractor prior to the isolation of the steam supply system in order to minimize freeze protection issues. For the same reason, the condensate system shall be isolated by the Buyer and drained by Subcontractor after the steam supply system has been isolated.

b. The above-ground hot waste lines running from the south side of the access road to the facility shall be isolated and removed prior to demolition of the facility foundations and exterior tanks.

c. The liquid waste generated from decontamination activities and collected in building sumps shall be drummed, solidified, and characterized for transferred to Buyer for disposal by the Subcontractor.

2. The project's isolation from the existing plant electrical power grid and reconnection to the designated temporary power distributed through the Building Disconnects, shall occur once the subcontractor has installed and verified proper installation of his temporary electrical distribution systems.

a. The electrical system isolation of Buildings shall be performed per the requirements of Specification Section 16000 Electrical and Section 01915 Electrical Equipment Removal.

b. The telephone and alarm systems isolation of Buildings can occur after:

(1) electrical isolation has occurred and temporary power has been installed per electrical specification Section 16000, and

(2) HVAC controls (DDC) have been isolated per Ventilation System Dismantlement and Demolition.

(3) fire systems has been isolated.

Note: DDC panels should be returned to Buyer if possible.

3. Subcontractor work sequencing may be modified from the instructions detailed above to account for seasonal weather conditions or other variables with written permission from the Buyer.

PART 2 PRODUCTS

2.1 The Subcontractor shall provide all proper materials, incidentals, and accessories necessary for the timely execution of the work activities in requisite numbers, sizes,

and capacity.

2.2 The Subcontractor shall field verify all pipe sizes, system appurtenances and components, and locations prior to planning and/or installation activities.

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall establish access controls to the work area(s) using appropriate signs and barriers.

B. The Subcontractor shall ensure that proper control measures are in place for slope protection and soil erosion during any excavation activities as required.

C. The Subcontractor shall prevent damage to adjacent structures and systems during removal activities.

D. Buyer will support Subcontractor with coordination of site personnel in the isolation of utilities using Lock-out/Tag-out procedures.

3.2 MECHANICAL UTILITIES ISOLATION/REMOVAL

A. The steam and condensate system will be isolated from the buildings by the Buyer at a central location, when the need for building heat, i.e. freeze protection, is no longer required or the facilities are ready for demolition. The isolation of the systems will terminate the use of the ventilation system's duct heat coils for heating purposes.

NOTE: Building ATS does not utilize site steam or condensate.

1. The steam system shall be removed by the Subcontractor to the designated location indicated on Drawing No. WD002 WD Project Mechanical Utilities Isolation. The Subcontractor shall ensure that the remaining sections of abandoned lines are adequately supported.

   a. The coordination for the system isolation shall be through the Buyer's Technical Representative. The removal activities shall not be considered complete until the Buyer's Technical Representative has inspected the support of the remaining lines.

   b. The steam system is constructed of carbon steel pipe.

   c. Exterior of all piping is assumed to be covered by asbestos insulation with a metal jacket or metal foil wrap covering.

2. The extent of the steam system removal inside the structures shall be at a minimum adequate to drain the system. The extent of the system removal outside of the structure may be removed up to the point of isolation to allow access for or to expedite structural demolition at the Subcontractor's discretion.

    a. The steam system inside of the buildings shall be drained to the building sumps.

B. The condensate system shall be removed from the buildings immediately after the isolation of their steam supply systems.

1. The condensate system shall be removed by the Subcontractor to the designated location indicated on Drawing No. WD002. The Subcontractor shall ensure that the remaining sections of abandoned lines are adequately supported.

    a. The coordination for the system removal shall be through the Buyer's Technical Representative. The removal shall not be considered complete until the Buyer's Technical Representative has inspected the support of the remaining lines.

    b. The condensate system is constructed of carbon steel pipe.

    c. Exterior of all piping is assumed to be covered by asbestos insulation with a metal jacket or metal foil wrap covering.

2. The extent of the removal of the system inside of the building structures shall be at a minimum adequate to drain the system. The extent of the system removal outside of the structure may be removed up to the point of isolation to allow access for or to expedite structural demolition at the Subcontractor's discretion.

    a. The condensate system inside of buildings shall be drained to the building sumps.

C. The domestic (potable) water systems will be isolated from the building by the Buyer prior to demolition of the facility.

1. The extent of the removal of the potable water system inside the facilities shall be at a minimum adequate to drain the system. The extent of the system removal outside of the structures shall be from the exterior of the building to a point outside of the building demolition footprint, reference Section 01945 Below Grade Removals. The exterior portion of the system removals will not occur until demolition of the structures has been

initiated.

a. The system inside of the buildings shall be drained to the building sumps.

b. The system backflow preventer and valve stations in the buildings maybe salvaged at the Subcontractor's discretion for later onsite usage.

c. The exterior potable piping system is constructed of cast iron or ductile pipe. The interior potable piping systems inside the buildings are constructed of carbon steel pipe**,** copper pipe, and copper tubing.

2. A hydrant(s) to allow use of the system for dust suppression, personnel shower trailers or other Buyer approved uses will be installed. The potable water sources are shown in Drawing No. WD002.

a. The proposed method and schedule of installation, materials, and freeze protection shall be detailed in the applicable Work Package, reference Section 1.4A.

b. A tested and certified backflow preventer must be in place at the 4-inch water hydrant before usage.

D. The Raw (Supply) water system, which runs adjacent to the footprint of these buildings, will be isolated by the Buyer prior to demolition of the facility.

E. A Supply water dilution line, which original fed the building, is abandon and some of the line have been removed inside the building. The 6" cast iron underground line enters the east side of the building in the lower basement. This line should be plugged wherever it is terminated from the Facility.

3.4 The plant chill water system will be isolated from the buildings by the Buyer prior to the isolation of the steam supply system. The system contains a mixture of approximately 30% ethylene glycol.

A. The subcontractor will be responsible to drain the system in the buildings and the glycol piping outside of the buildings prior to any building demolition work. The coordination for the system isolation shall be through the Buyer's Technical Representative.

1. Approximately 1,000 gallons of glycol will have to be drained from the system. The glycol will be drummed or tanked. (Buyer shall provide storage tank/drums.)

2. The glycol system inside of the buildings is constructed of carbon steel pipe. The system piping is covered with fiberglass insulation.

3. The amount of piping removed outside of the facilities shall be left to the discretion of the Subcontractor. However, the piping, which remains, shall be adequately supported.

3.5 The plant compressed air system will be isolated by the Buyer from the buildings after the isolation of the steam supply system.

A. The amount of compressed air piping removed outside of the buildings shall be left to the discretion of the Subcontractor. However, the piping, which remains, shall be adequately supported.

1. The coordination for the system and removal shall be through the Buyer's Technical Representative.

B. The extent of the removal of the compressed air system inside of the building structures shall be at the Subcontractor's discretion. The extent of the system removal outside of the structure shall be from the exterior of the building to a point on the pipe rack located east of the East Loading Dock adjacent to the buildings as indicated on Drawing No. WD002. Additional portions of the system may be removed up to the point of isolation to allow access for or to expedite structural demolition at the Subcontractor's discretion.

1. The compressed air system is constructed of carbon steel pipe**,** copper pipe, and copper tubing.

3.6 The plant breathing air system will be isolated by the Buyer.

A. The breathing air piping removed outside of the buildings shall be in conformance to the location specified in Drawing No. WD002 by the Subcontractor; the piping that remains shall be adequately supported.

1. The coordination for the system removal shall be through the Buyer's Technical Representative.

B. The extent of the removal of the plant breathing air system inside of the Building structures shall be at the Subcontractor's discretion. The extent of the system removal outside of the structure shall be from the exterior of the building to a point on the pipe rack located east of the East Loading Dock adjacent to the building as indicated on Drawing No. WD002. Additional portions of the system may be removed up to the point of isolation to allow access for or to expedite structural demolition at the Subcontractor's discretion.

1. The plant breathing air system is constructed of stainless steel pipe

material.

3.7 The sanitary sewer system shall be isolated from the facilities prior to or during Phase I work.

NOTE: The rerouting of sanitary sewer lines to accommodate the removal of sanitary sewer lines in and near the building will be performed by the Buyer.

A. All abandoned sewer lines outside of the buildings shall be plugged per the notes indicated on Drawing No. WD002.

B. The extent of the removal of the sanitary sewer system inside the structures shall be at a minimum adequate to drain the system. The extent of the system removal outside of the structure shall be from the exterior of the building to a point outside of the building demolition footprint, reference Section 01945 Below Grade Removals. The exterior portion of the system removal will not occur until the demolition of the structure has been initiated. Additional portions of the system may be removed up to the point of isolation to allow access for or to expedite structural demolition at the Subcontractor's discretion.

1. The system is constructed of cast iron pipe (CIP), ductile iron pipe (DIP), or vitrified clay pipe (VCP), see referenced drawings for details.

2. The manhole and sanitary sewer lines shall be terminated and plugged inside of the facility by the subcontractor.

3.9 The storm drain (sewer) system shall be isolated at the time of structural demolition.

A. The storm drain (sewer) system isolation shall be made at the locations indicated on Drawing No. WD002.

B. Interior demolition shall consist of plugging (grouting) any drains located within the building that connect to the storm drain system prior to the initiation of decontamination (scabbling, blasting, etc.) activities in order to prevent the possible spread of radiological contamination through the system, reference Drawing No. WD002.

C. The extent of the storm drain system removal outside of the structure shall be from the exterior of the building to a point outside of the building demolition footprint, reference Section 01945 Below Grade Removals. The exterior portion of the system removal will not occur until the demolition of the structure has been initiated. Additional portions of the system may be removed up to the point of isolation to allow access for or to expedite structural demolition at the Subcontractor's discretion.

1. All "abandoned in place" storm drain pipe branch lines (from roof drains, etc.) shall be plugged at the point where the pipe is left in the ground. Plugs shall be adequate to prevent groundwater infiltration into the system.

2. The storm drain system is construction of either cast iron pipe (CIP), ductile iron pipe (DIP), vitrified clay pipe (VCP), reinforced concrete pipe (RCP), or concrete pipe (CONC). The slotted trench drains are fabricated from steel grating and corrugated pipe. See referenced drawings for location details.

3.10 The fire suppression (firewater) system shall be isolated per the instructions provided in Section 01920 Fire Protection/Suppression Systems, prior to the isolation of the steam supply system. The actual isolation of the main to the building will be accomplished by the Buyer.

3.11 The overhead telephone lines supplying the buildings must be relocated or removed prior to building demolition.

A. The telephone services are provided by overhead lines along the south road.

B. The building telephone system provides the communication link for:

1. Monitoring Operations of Exhaust Fan and Monitoring Equipment

2. Facility emergency communications

3. PCM and Radiological control personnel if a person becomes contaminated.

3.12 BUILDING APPLICATION

A. The fire suppression (firewater) system shall be isolated from the building by the Buyer. The lines will be removed by the Subcontractor per the instructions provided in the Utilities Isolation and Fire Protection/Suppression Systems sections.

B. The Supply Water system shall be isolated from around Building by the Buyer. The lines will be removed by the Subcontractor per the instructions provided in Building Dismantlement and Demolition section.

C. The Domestic or Potable water to the buildings shall be removed by the Buyer. The lines will be removed by the Subcontractor per Building Dismantlement and Demolition section. (This line will be "dead" when the loop is isolated by the Buyer.)

D. The Storm Water Sewage system shall be isolated from and around the Buildings by the Subcontractor and removed per the Building Dismantlement and Demolition section.

E. The Steam and Condensate system shall be isolated from around the buildings by the Buyer. The lines will be removed per the instructions provided in Building Dismantlement and Demolition section.

F. The Compressed Air system shall be removed from around the buildings per Building Dismantlement and Demolition section.

G. The Glycol Lines shall be removed from the buildings per Building Dismantlement and Demolition section.

H. The Sodium Chloride (Brine) line that runs over the buildings will be isolated by the Buyer and shall be removed by the subcontractor prior to the demolition of the building. The line is a carbon steel line and the ends need not be capped or plugged. However, the abandon lines must be supported.

I. The overhead telephone lines into Buildings 23 shall be relocated or removed prior to building demolition by the Buyer.

1. The overhead lines that enter the buildings provide telephone services. The lines needs to be removed from the building back to the first telephone pole. See Section 1.5 concerning Sequencing.

PART 4 SPECIAL INSTRUCTIONS

A. The domestic (potable) water system shall be removed from around the buildings and plugged prior to demolition. (Isolation will be performed by the Buyer.)

1. A potable water connection is available to the Subcontractor to provide a source of potable water to a potential shower trailer.

2. A separate potable water source will be available for the Subcontractor to use for dust control and etc. The potable water valve station shall have a system backflow preventer installed by the Subcontractor to meet Buyer's potable water requirements.

B. The site Supply Water line shall be removed from around Buildings and plugged prior to demolition. (Isolation will be performed by the Buyer.)

C. Utility system(s) pipe rack or structural supports shall be removed to a point outside the immediate construction area.

1. The utility overhead pipe rack system shall be demolished to a point west of the adjacent service road.

2. The utility overhead pipe rack system shall be demolished to a point north of the service road.

    a. All remaining pipe racks shall be left in a condition of acceptable structural integrity, satisfactory to the Buyer.

END OF SECTION

SECTION 01915

ELECTRICAL EQUIPMENT REMOVAL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Electrical demolition necessary to allow Buildings WD, 23, and ATS to be demolished and meet the NESHAPs criteria in Section 01190 Environmental Compliance. Radiological contamination may exist on conduits and locations not accessible.

1. Major items of equipment include:

a. Building WD Motor Control Centers in WD-4, WDA-9, and WDA-110 will be a contaminated waste items

b. Building WD Distribution Center in WD-101, and WD-01 will be a contaminated waste items

c. Building ATS/23 power disconnect and isolation breaker on Building 125 (ATS)

1.2 RELATED SECTIONS

A. Section 01110 Safety and Health

B. Section 01550 Waste Management

C. Section 01900 Utility Isolation and Removal

D. Section 01920 Fire Protection / Suppression Systems.

E. Section 01925 Secondary Ventilation Systems Demolition

F. Section 01940 WD Ventilation System Dismantlement and Demolition.

G. Section 16000 Electrical.

1.3 SUBMITTALS

A. The Subcontractor shall submit for review a Work Package that covers removal of Electrical Equipment. The Work Package shall be in accordance with the

requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with Electrical Equipment Removals covered in this section until review is completed regarding this **HOLD POINT** from the Buyer.

PART 2 PRODUCTS

2.1 NOT USED

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify field measurements and circuiting arrangements.

B. Verify abandoned wiring and equipment serve only abandoned facilities.

C. Identify items indicated in contract documents to be salvaged or retained.

D. Report discrepancies to Buyer's Technical Representative before disturbing existing installation.

3.2 PREPARATION

A. Coordinate with the Buyer on LO/TO of electrical utilities.
B. Follow Subcontractors' Safety and Health Plan and LO/TO Program.

3.3 APPLICATION

A. Existing Electrical Service: Maintain existing electrical systems in service until new temporary power systems are complete and ready for service. See Section 16000 for new electrical installation details. Disable systems only to make switchovers and connections. Notify Buyer 30 days prior to disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area and for temporary construction activities.

B. Existing Fire Alarm System: Maintain existing system in service until Utility Systems isolation occurs. See Section 01900 for information regarding Utility Isolation and Removal and Section 01920 for details on activities associated with Fire Protection / Suppression systems. Notify Buyer 30 days prior to disabling system.

3.4 Existing Direct Digital Control (DDC) System: Maintain existing systems in service until affected utilities effected are secured. See Sections 01900 Utility Isolation and Removal and Section 01925 Secondary Ventilation Systems Demolition and Section 01940 WD Ventilation System Dismantlement and Demolition.

PART 4 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL SYSTEMS

4.1 ELECTRICAL EQUIPMENT TO BE REMOVED BY SUBCONTRACTOR:

A. Remove electrical equipment not required to remain in service.

B. Remove abandoned wiring to source of supply.

C. Remove exposed abandoned conduit including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors.

D. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed.

E. Disconnect and remove abandoned panel boards, distribution equipment, and their source wiring.

F. Disconnect and remove electrical devices and equipment serving equipment that has been removed.

G. Disconnect and remove abandoned luminaries. Remove ballasts. (Ballasts may contain PCB's, see Section 1550 Waste Management.)

4.2 SPECIAL INSTRUCTIONS:

A. In accordance with Subcontractor's health and safety plan and use suitable methods to limit amount of dust and dirt rising and scattering in air to lowest level of air pollution practical.

B. Provide barricades and observe safety regulations.

C. Maintain access and clearance to existing active temporary electrical installations.

END OF SECTION

SECTION 01920

FIRE PROTECTION/SUPPRESSION SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The required fire protection/suppression system isolations and relocations, the sequencing of the fire protection/suppression system isolations and relocations, and the extent of the fire protection/suppression system demolitions and removals.

1. The Buildings WD, 23, and ATS fire protection/suppression systems consists of the following:

a. Alarm system

(1) Fire detection alarms

i. wet sprinkler system water flow alarm

ii. wet hose cabinet water flow alarm

iii. wet system riser isolation valve manipulation/tamper alarms

iv. pull station alarms

(2) Data Gathering Panels (DGP) for alarm code transmission

(3) Alarm bells

b. Suppression system

(1) Fire sprinklers (wet system; throughout Buildings WD, 23, and ATS)

(2) Fire extinguishers (local; throughout Buildings WD, 23, and ATS)

1.2 RELATED SECTIONS

A. Section 01110 Safety and Health

B. Section 01150 Work in Radiologically Contaminated Areas

C. Section 01210 Facility Surveillance and Maintenance

D. Section 01300 Submittals

E. Section 01460 Integrated Work Control

F. Section 01500 Facilities, Controls, and Project Boundaries

G. Section 01550 Waste Management

H. Section 01900 Utility Isolation and Removals

I. Section 01915 Electrical Equipment Removal

J. Section 01945 Below Grade Removals

K. Section 16000 Electrical

1.3 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

1. Drawing No. WD002, WD Project Mechanical Utilities Isolation

C. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23, and 125 (ATS)

D. Appendix F MLM-3842, Building WD Fire Hazardous Analysis

E. Appendix H MD-10532, Building 23 Fire Hazardous Analysis

F. Appendix K MLM-3845, Building ATS Fire Hazardous Analysis

G. 29 CFR 1926, Subpart T-Demolition, Sections 850-860

1.4 SUBMITTALS

A. As noted in Section 01460 Integrated Work Control, it is the Subcontractor's discretion regarding the number of Work Packages submitted and utilized on this project. However, a Work Package shall be submitted for Buildings WD,

23, and ATS that includes all removal of fire protection/suppression systems, especially addressing work activity sequencing and method of accomplishment. The Work Packages shall be in accordance the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor **shall not** proceed with fire protection/suppression systems covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

B. Outage, permit, and/or Buyer support service requests shall utilize the Construction Daily Report as described in Section 01010 Summary of Work.

C. The Subcontractor shall submit a request to the Buyer for the appropriate fire protection/suppression system outage(s).

D. The Subcontractor shall submit a request for the necessary special work permits (i.e., hot work permit, excavation permit, etc.) as required per the approved method of accomplishment.

E. The Subcontractor shall submit a request for a Radiation Work Permit(s) (RWP), in accordance with Section 01150 Work in Radiologically Contaminated Areas, if required per existing radiological postings.

1.5 SEQUENCING

A. The intent of this work sequence is to isolate the project structure(s) from all currently existing plant utilities and thus eliminate the work hazards associated with performing demolition activities within an electrically and mechanically energized facility per OSHA Regulation 29 CFR 1926.850, Subpart T.

B. Fire protection/suppression system isolation and removal work activities for Building WD, 23, or ATS shall not commence until the Subcontractor, the Buyer's Technical Representative (BTR) have performed a complete and documented walkdown of the areas. The walkdown will ensure that potential fire hazards and combustible materials ("fireloading") have been minimized. The Subcontractor **shall not** proceed with fire protection/suppression systems isolation until written approval is received regarding this **HOLD POINT** from the Buyer for each facility's Safe Shutdown/Building Demolition".

C. Work sequencing for the WD, 23, and ATS facilities shall be performed at the Subcontractor's discretion except as follows:

1. Mechanical utility isolation sequencing of the facilities shall be at the Subcontractor's discretion except for the following requirements:

a. The fire protection/suppression systems shall be isolated and drained prior to the isolation of a steam supply system or prior to removal of

Subcontractor supplied heat to the facility in order to minimize freeze protection issues.

2. The facilities can be isolated from the temporary electrical power grid, distributed through the building, once the mechanical utility systems isolations are completed and the fire protection/suppression system alarm capability are no longer required.

   a. The electrical system isolation shall be performed per the requirements of Specification Section 16000 Electrical, 01900 Utilities Isolation and Removal, and Section 01915 Electrical Equipment Removal.

   b. Written notice shall be provided to the Buyer thirty (30) days prior to electrical isolation to allow for exterior fire alarm routing modifications by Buyer.

   c. Local alarm disconnections shall be coordinated through the Buyer's Technical Representative.

3. The Subcontractor shall not proceed with Building 23 facility systems isolation, decontamination, and demolition until written approval is received regarding this **HOLD POINT** from the Buyer.

4. Subcontractor work sequencing may be modified from the instructions detailed above to account for seasonal weather conditions or other variables with written permission from the Buyer.

PART 2 PRODUCTS

2.1 MATERIALS

A. The Subcontractor shall provide all proper materials, incidentals, and accessories necessary for the timely execution of the work activities in requisite numbers, sizes, and capacity.

2.2 EQUIPMENT

A. The Subcontractor shall provide all equipment and materials necessary for the timely execution of the work activities in requisite numbers, sizes, and capacity.

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall establish access controls to the work area(s) using

appropriate signs and barriers.

B. The Subcontractor shall ensure that proper control measures are in place for slope protection and soil erosion during excavation activities as required.

C. The Subcontractor shall prevent damage to adjacent structures and systems during isolation and removal activities.

3.2 APPLICATION

A. The fire protection/suppression system shall be isolated from either Building WD, 23, or ATS prior to the isolation of the steam supply system to that facility.

1. The physical wet fire protection/suppression system isolations for WD shall be made at the locations indicated on Drawing No. WD002 WD Project Mechanical Utilities Isolation. The isolations shall consist of the removal of the Building WD branch line from the 8-inch diameter main header located off the road between Building 45 and 89 (constructed of asbestos cement pipe). The existing pipe is approximately six feet below grade.

NOTE: The Fire Water lines will be isolated by the Buyer. The subcontractor will only remove the lines at locations designated per notes on Drawing No. WD002.

a. The trench required for isolation shall be excavated to a width and depth adequate to allow for the proper joining of the transition couplings. The bedding of the replacement segment of pipe shall be pea gravel that extends upward around the pipe to a depth of not less than 30 percent of the outside diameter and extends below the bottom of the pipe for a thickness of at least six inches. The bedding shall be compacted and firm for the full length of the replacement pipe and couplings.

b. The trench shall be dewatered prior to backfilling. Pea gravel shall be carefully placed to a depth of twelve inches above the top of the pipe. This initial lift shall be adequately compacted or tamped to fill all voids and to ensure the proper seating and stability of the pipe. Succeeding lifts of backfill shall not exceed eighteen inches in loose depth and be compacted or tamped to fill all voids and achieve proper stability of the backfill material.

c. The uppermost six inches of the excavation shall be backfilled with granular aggregate suitable for subgrade treatment. The aggregate should consist of crushed stone, crushed slag, or crushed or uncrushed gravel in combination with sand and/or finely divided

mineral particles. Compaction shall provide a stable surface suitable for vehicle traffic. The area shall be maintained until the project has been completed and accepted.

d. The isolation shall not be considered complete until the Buyer's Fire Department has performed an in-service leak test upon the system.

2. The physical wet fire protection/suppression system isolations for 23 and ATS shall be made at the locations indicated on Drawing No. WD002. The isolations shall consist of the removal of the Building branch lines from the 8 inch diameter main located between the road and Buildings 23 and ATS (constructed of asbestos cement pipe). The existing pipe is approximately six feet below grade.

   NOTE: The Fire Water lines will be isolated by the Buyer. The subcontractor will only remove the lines to the locations designated by the notes on Drawing No. WD002.

3. The extent of the removal of the wet systems inside Building WD, 23, or ATS structures shall be at a minimum adequate to drain their respective systems. The extent of the system removal outside of the structure shall be from the exterior of the building to a point outside of the building demolition footprint, reference Section 01945 Below Grade Removals. The exterior portion of the system removal will not occur until the demolition of the structure has been initiated.

   a. The systems inside of Buildings WD, 23, or ATS shall be drained to the building sumps.

   b. The Buildings 23 south dock area firewater piping has been freeze protected by the addition of ethylene glycol to the system. The glycol shall be drained and handled per the instructions found in Specification Section 01550 Waste Management. The valve separating the freeze-protected portion of the wet system from the primary portion of the wet system is located within building 23.

   c. The wet suppression systems inside of Buildings WD, 23, or ATS above grade are constructed of carbon steel. The wet suppression systems outside of Buildings WD, 23, or ATS, below grade, are constructed of asbestos cement (AC) pipe.

   d. The wet system valve stations in WD are located in Building WD room-118A and along the north walls of Building 23 and ATS shall be salvaged by the Subcontractor for turnover to the Buyer. The Buyer's Radiological Control support personnel shall make the determination as to whether or not a valve station component can be

readily salvaged. Intrusive decontamination by the Subcontractor will not be required.

B. The fire protection/suppression system alarm capability shall be eliminated at Buildings WD, 23, or ATS then each respective building is isolated from the existing plant electrical power grid. Reference Specification Section 16000 Electrical and Section 01915 Electrical Equipment Removal.

1. The following items shall be salvaged for turnover to the Buyer where it is radiologically feasible. The Buyer's Radiological Control support personnel shall make the determination as to whether or not an alarm system component can be readily salvaged. Intrusive decontamination by the Subcontractor will not be required.

a. Data Gathering Panels located in WD-9 in the basement of Building WD.

b. Data Gathering Panels located in Building 23 and ATS.

c. Pull stations located at various locations throughout Buildings WD, 23, and ATS.

d. Alarm bells located at various locations throughout Buildings WD, 23, and ATS.

e. Wet system riser isolation valve manipulation/tamper alarms located in WD-200P in the Penthouse of Building WD.

3.3 SPECIAL INSTRUCTIONS

A. Prior to the initiation of Subcontractor demolition activities inside of Building WD, the existing fire extinguishers that are the property of the Buyer shall be removed from the building and turned over to the Buyer where radiologically feasible. Intrusive decontamination by the Subcontractor will not be required. The Subcontractor shall be responsible for providing fire extinguishers appropriate to the work being performed.

B. Buildings WD, 23, and ATS are classified as an "Industrial Occupancy" by the 1997 edition of the NFPA Life Safety Code. There is no routine personnel occupancy of the building.

C. Upon termination of the fire protection/suppression sprinkler system, all existing common paths of travel and exits within the building will be required to be clear and free of obstruction.

D. Building WD, 23, and ATS fire doors communicating between building rooms

must be retained until immediately prior to structural demolition.

E. Building WD, 23, and ATS existing "Exit" signs shall be maintained in place and visible during interior demolition activities.

END OF SECTION

SECTION 01925 – ATTACHMENT I
SECONDARY VENTILATION SYSTEMS DEMOLITION

TECHNICAL MANUAL

MANUAL TITLE	MANUAL NO.	MANUAL ISSUE	PAGE
Facilities Maintenance and Utilities Post Maintenance Testing Manual	**MD-50003**	**3**	**1 of 17**
OPERATION TITLE	**OP. NO.**	**OP. ISSUE**	**USE CATEGORY**
In-Place Leak Test Procedure	**FM-PMT-002**	**3**	**B**
TECHNICALLY RESPONSIBLE	**ECN NO.**	**EFF. DATE**	
R. A. Mahan	**000075MD**	**05-02-00**	

☑ Denotes change

USE CATEGORY	
B	This procedure must be readily available to the user at the location of the work activity. The procedure shall be reviewed prior to job start and as often as necessary to ensure proper performance of the activity and applicable documentation requirements, such as data entry and hold points, are satisfied.

TABLE OF CONTENTS

TECHNICAL MANUAL

MANUAL TITLE	MANUAL NO.	MANUAL ISSUE	PAGE
Facilities Maintenance and Utilities Post Maintenance Testing Manual	**MD-50003**	**3**	**2 of 17**
OPERATION TITLE	**OP. NO.**	**OP. ISSUE**	**USE CATEGORY**
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TECHNICAL MANUAL

OPERATION TITLE	OP. NO.	OP. ISSUE	USE CATEGORY	MANUAL NO.	PAGE
In-Place Leak Test Procedure	**002**	**3**	**B**	**MD-50003**	**4 of 17**

1. PURPOSE

NOTE:
- Testing is **not** mandatory after a pre-filter change.
- HEPA filters are tested and certified by manufacturer and verified per Filter Test Facility at Martin Marietta, Oak Ridge.

1.1 ☑This procedure provides detailed instructions necessary for In-Place Leak Testing of High-Efficiency Particulate Air (HEPA) filter banks at Mound. The test is used during the acceptance testing of Mound's filter banks. This procedure should also be used for the testing of portable HEPA units and HEPA vacuums.

1.2 ☑The test is performed on a Preventive Maintenance (PM) program as scheduled by Proteus. The test is also performed after filter replacement or any maintenance activity that might compromise the integrity of the HEPA filter banks. The test is to verify the following:

1. The filters have not been damaged.
2. The filters have been installed properly.
3. There are no leaks in the mounting frame or between mounting frame and the housing.
4. The system has not degraded since last test.

2. SCOPE

This procedure applies to the following filter banks.

DOE 912726	SW Building	215
DOE 912728	R Building	Y-1
DOE 912729	R Building	Y-2
DOE 912730	R Building	Y-3
DOE 912731	R Building	R-1
DOE 912732	R Building	R-2
DOE 912733	R Building	W-1
DOE 912734	R Building	W-2
DOE 912740	Building 50	K-1-3
DOE 912723	Building 50	K-2-3
DOE 912727	Building 38	AJ-113
DOE 912735	Building 58	101

DOE 912736	Building 58	102
DOE 912737	Building 58	103
DOE 912738	Building 58	104
☑DOE 912724	WD Building	High Risk
☑DOE 912725	WD Building	Low Risk
☑DOE 930777 CWPF	Main exhaust system and portable units	
☑DOE 932351 T	T-27	

3. REFERENCES, RECORDS REQUIRED, AND COMMITMENT DOCUMENTS

3.1 ☑References

1. ANSI/ASME N510-1975, 1980 and 1989

2. Section 8, Nuclear Air Cleaning Handbook

3. Harvard University, In Place Filter Testing Workshop

4. MSDS found on file with Industrial Hygiene

3.2 Records Required

1. Completed Data Work Sheet

2. ☑Completed copy of the Radiological Work Permit (RWP) where required. (Currently only for Building 38)

3.3 ☑Commitment Documents

See current safety authorization basis documentation for each building.

4. PREREQUISITES

4.1 ☑HVAC Engineer shall coordinate test.

1. Coordinate with Building Manager to schedule the date and time.

2. Coordinate with Radiological Control group, as necessary, for each building:

- Obtain Radiation Work Permit (RWP), if required.
- Record RWP number on Data Work Sheet (Attachment 1), if required.
- Survey In-Place Leak Test equipment after test.

3. Coordinate with Area Maintenance Foreman and operations, if applicable.

4.2 Personnel performing procedure shall calculate, on Data Work Sheet (Attachment 1), the number of generators required to perform procedure accurately.

1. Number of generators = TFBCFM/30,000CFM. Where:

- TFBCFM = Total Filter Bank Cubic Feet per Minute. (obtained from monthly stack-flow readings measured by Electrical Control Craftsperson)
- 30,000CFM = Maximum capacity of each aerosol smoke generator.

5. LIMITS AND PRECAUTIONS

5.1 All of the prerequisites in Section 4 shall be completed before the performance of this procedure.

5.2 This procedure requires <u>all</u> modes of sampling to be consistent with the *ANSI/ASME N510 Nuclear* and *Air Cleaning Handbook* guidance, (i.e., point of downstream sampling).

5.3 All personnel performing this procedure must be qualified competent by Management to do so.

1. Personnel performing procedure shall have attended one of the following: *Harvard University*, *In Place Filter Testing Workshop* or *NUCON* (Nuclear Consulting Services, Inc.) *In Place Filter Testing Workshop* or

equivalent.

5.4 ☑All personnel shall be familiar with the aerosol challenge agent Material Safety Data Sheets (MSDS) Sheet.

TECHNICAL MANUAL

OPERATION TITLE	OP. NO.	OP. ISSUE	USE CATEGORY	MANUAL NO.	PAGE
In-Place Leak Test Procedure	**002**	**3**	**B**	**MD-50003**	**8 of 17**

6. SPECIAL TOOLS AND EQUIPMENT

6.1 Aerosol smoke generator, **Air Techniques Inc. Model TDA-5a Aerosol Generator** or equivalent (unit must be capable of providing enough challenged smoke, polydispersed aerosol of consistent particle size distributed by small amounts of nitrogen or argon gas, for a filtration system up to 30,000 CFM).

NOTE:
- Generator requires 50 PSIG of nitrogen or argon gas and 120 VAC to operate.
- Generator requires a 20-minute warm-up time.

6.2 Penetrometer (detector), **Air Techniques Inc. Model TDA-2EN Particulate Detection Apparatus** or equivalent (one detector per filter bank is required).

NOTE:
- Penetrometer requires 120 VAC to operate.
- Penetrometer requires a 10 minute warm-up time.

7. ACCEPTANCE CRITERIA

7.1 ☑All nuclear filter banks must pass the In-Place Leak Test Procedure with greater than 99.97% efficiency.

8. PROCEDURE

NOTE: Generator warm-up time allows heater block to heat to approximately 750ºF. This temperature is needed to allow for the proper vaporization of liquid.

8.1 Initial Set Up of the Generator

1. Add challenge agent to the generator, being careful not to overfill.

2. Turn the generator on and allow 20 minutes to warm up.

3. Hook up nitrogen, at a pressure less than or equal to 50 PSIG, to the generator.

TECHNICAL MANUAL

OPERATION TITLE	OP. NO.	OP. ISSUE	USE CATEGORY	MANUAL NO.	PAGE
In-Place Leak Test Procedure	**002**	**3**	**B**	**MD-50003**	**9 of 17**

8.2 Initial Set Up of the Detector

1. Set the selector switch to 100% position to protect electronics during the warm-up period.

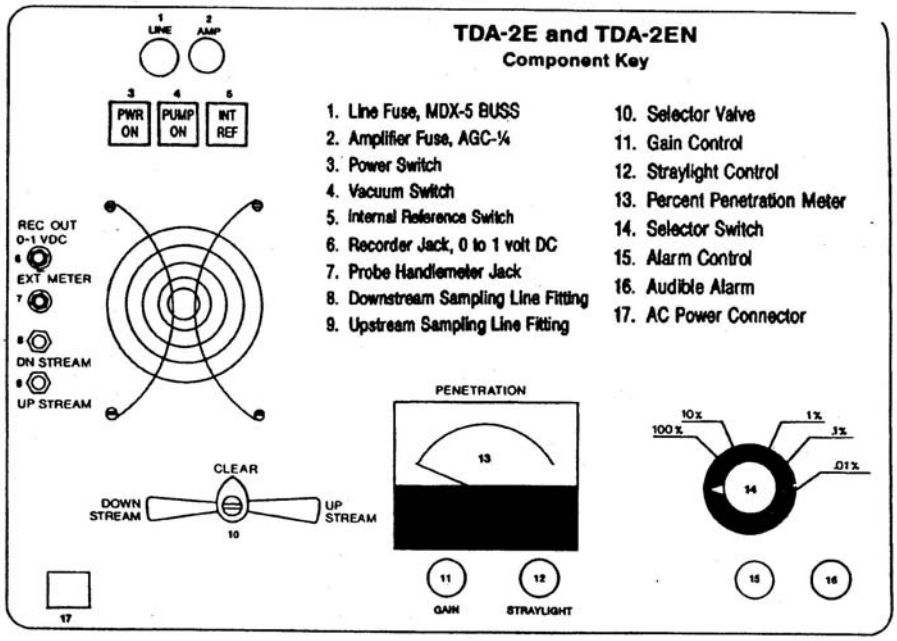
2. Set the selector valve to CLEAR to permit air to be drawn through HEPA reference filter which provides clean air for scattering chamber.

NOTE:
- A 30-second delay may occur before the switches illuminate.
- The detector warm-up time stabilizes the circuitry to reduce thermally induced drifts during the test.

3. Depress and release the power (PWR) and the vacuum (VAC) switches to activate unit and allow a 10-minute warm-up time.

8.3 Differential Pressure Reading

Record the differential pressure in inches of water column across the filters using system magnehelic or temporary manometers on the Data Work Sheet (Attachment 1).



TECHNICAL MANUAL

OPERATION TITLE	OP. NO.	OP. ISSUE	USE CATEGORY	MANUAL NO.	PAGE
In-Place Leak Test Procedure	**002**	**3**	**B**	**MD-50003**	**10 of 17**

Figure 1

8.4 Zero Adjustment

1. Place the selector switch in O position and adjust meter Zero control for a reading of 0 (Figure 1).

NOTE: On the later or updated models, meter Zero position has been deleted from selector switch and the Meter Zero control moved to the amplifier board, which is factory set. To check, place the selector switch on .1% and adjust straylight to 0 reading. Place the selector switch in 100% position. A reading of 0 should be obtained.

8.5 Pre-Test Linearity Check (User Calibration)

NOTE:
- Linearity is checked by verifying that the top reading on each meter range corresponds to the bottom reading on the next higher meter range.
- User calibration is a field procedure for Amplifier Linearity Check recommended by ATI (Air Techniques).
- If at any time the detector does not user calibrate, service and bench calibration shall be done.

1. Turn the straylight control fully clockwise and place the selector switch in .01% position.

2. Adjust the gain control to obtain a full scale reading (100).

3. Place the selector switch in 0.1% position. A reading of 10 " increment should be obtained.

4. Adjust the gain control for a full scale reading (100).

5. Place the selector switch in 1.0% position and a reading of 10 " increment should be obtained.

6. Adjust the gain control for a full scale reading (100).

NOTE:
- On some units the background (straylight) won't be high enough to obtain readings on the 100% scale and possibly the 10% scale.

This is **not** an indicator that something is wrong. This an indicator that Total Background Level (combination of reflective sources and dark anode current) is too low to check for upper ranges.

- By using the Internal Reference for 10% and 100% scales without enough gain, the linearity can be checked on these ranges.

7. Place the selector switch in 10% position and a reading of 10 " increment should be obtained.

8. Adjust the gain control for a full scale reading (100).

9. Place the selector switch in 100% position and a reading of 10 " increment should be obtained.

8.6 In-Place Leak Test

1. Ensure that steps 8.1 through 8.4 have been performed.

2. Connect the detector's sampling tubes to the upstream and downstream ports.

NOTE: Background concentration should not interfere with detector capability to detect leaks at least two times smaller than the maximum leak allowed by project specifications.

3. Monitor the background concentration upstream and downstream of the HEPA filters for "1% stability .

4. Reduce the background concentration to an acceptable level if it is too high and/or unstable.

5. Connect aerosol Generator(s) to the injection port, start injection, and adjust as necessary to maintain 100% saturation level.

6. Position the valve on detector to upstream point and allow to stabilize. Record upstream reading on Attachment 1.

7. Position the valve on detector to downstream point and allow to stabilize.

Record downstream reading on Attachment 1.

8. Repeat steps 5 and 6 until readings are within " 5%.

NOTE: Final readings are to be used for calculations.

8.7 Calculations

1. Calculate, on Attachment 1, percent of penetration from the equation

P = 100 x CD/CU.

Where: P = Percentage Penetration

CD = Downstream Concentration, from photometer readings

CU = Upstream Concentration, from photometer readings.

8.8 Post-Test Linearity Check (User Calibration)

Repeat Step 8.5 to ensure the linearity during the test has not changed.

9. POST-PERFORMANCE ACTIVITIES

9.1 ☑Copies of attachments shall be sent to:

- Preventive Maintenance System Administrator
- Radiological Control Supervisor
- Area Maintenance Foreman
- Building Manager
- HVAC Engineer

9.2 ☑The following people shall be notified immediately if the HEPA filter banks fail.

- Building Manager
- Maintenance Manager
- Radiological Control Supervisor
- Area Maintenance Foreman

TECHNICAL MANUAL

OPERATION TITLE	OP. NO.	OP. ISSUE	USE CATEGORY	MANUAL NO.	PAGE
In-Place Leak Test Procedure	**002**	**3**	**B**	**MD-50003**	**14 of 17**

10. ATTACHMENTS

Attachment 1 - In-Place Leak Test Data Sheet

☑ Attachment 2 - Building Anomalies/Supplemental Engineering Information

SECTION 01925 – ATTACHMENT I
SECONDARY VENTILATION SYSTEMS DEMOLITION

TECHNICAL MANUAL

OPERATION TITLE	OP. NO.	OP. ISSUE	USE CATEGORY	MANUAL NO.	PAGE
In-Place Leak Test Procedure	**002**	**3**	**B**	**MD-50003**	**15 of 17**

Attachment 1 - In-Place Leak Test Data Sheet

MSR Number: _____ RWP Number: _____

Location of bank tested: BLDG: _____ Room: _____

System Name / # _____ DOE #: _____

TFBCFM _____ / 30,000 CFM = NUMBER OF GENERATORS _____

Differential across filters: Pre-Filter _____ Hepa 1_____ Hepa 2 _____ (In. of Water)

CALIBRATION:
Pre-Test Calibration Yes ___ No___ Post-Test Calibration Yes ___ No ___

TEST EQUIPMENT:
Generator: _____ Number Used: _____
Penetrometer: _____ DOE/SN No.: _____

TYPE OF TEST: Upstream HEPA: ___ Downstream HEPA: ___ Overall: ___

Test Setup #	Downstream Concentration CD	Mathematical Operation	Upstream Concentration CU	Mathematical Operation %	Penetration Percentage P
1.		Divide by		X 100	P1 %
2.		Divide by		X 100	P2 %
3.		Divide by		X 100	P3 %

P1_____ +P2_____ +P3_____ / 3 = Average Penetration Percentage _____%

Average Penetration Percent _____ - 100 % = Filter Bank Percent Efficiency: _____%

Passed: ____ Failed: ____
[If fails, notify Building Manager immediately and document the notification below]

REMARKS: _____
_____

PERFORMED BY: _____ Date: _____

If failed, have corrective actions been taken? ____Yes ____No

A follow-up test has been scheduled for _____
Final Review _____

SECTION 01925 – ATTACHMENT I
SECONDARY VENTILATION SYSTEMS DEMOLITION

TECHNICAL MANUAL

☑Attachment 2 – Annual HEPA Filterbanks In-Place Leak Testing

Building Anomalies/Supplemental Engineering Information

Building	Anomaly
38	Challenge agent to be entered into the exhaust system at the floor exhaust register in the southeast corner of Room 140E. (Two generators.) An RWP must be written and full PPE is required (less respirator) in room 6E.
50	No ports located for upstream readings; hose inserted into ductport upstream of high and low risk filters.
58	Plant nitrogen header located on the east wall of room 100 not used; used nitrogen bottle same as all other locations. Two generators used to inject agent into left injection port to obtain satisfactory baseline for the EF-104 filter bank; one each generator for the other two injection ports; four generators total. A header has been made up to connect to the nitrogen supply line which will connect all four generators. This is located above the generator storage area in room 101, W Building.
CWPF	Tested the main exhaust, two portables, two vacuum units, and one drum crusher.
R	None.
SW-Cave	None. (But ports were labeled in reverse. Building manager tasked to correct labeling.)
T-27	None.
WD	Challenge agent is injected into fumehood in room 112 for the high risk filter bank test; into a vented mixing box in room 110 for the low risk test. The particulate detection device was set up on the roof adjacent to the filterbank penthouse. The downstream port is located in the EF-1 discharge duct on the roof of the filterbank penthouse. A probe manufactured for this test is screwed into the side of the duct after removing a 2-inch cap. This probe is maintained in Building WD by the Building Manager.
Portable HEPA Exhausters	When portable HEPA units are moved from one building to another, they shall be tested. Relocation within the building does not require retesting.

SECTION 01925

SECONDARY VENTILATION SYSTEMS DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The complete Building WD exhaust and ventilation system decontamination and demolition are covered by two sections, this section (Section 01925) and Section 01940 Building WD Ventilation System Dismantlement and Demolition.

The Secondary Ventilation Systems Demolition is part of Phase I of the overall project (as defined in Section 01010 Summary of Work); therefore, work under this section requires maintaining the WD facility at a negative pressure (keeping the "envelope" intact).

1. This section describes the scope of work related to the decontamination and demolition of the listed secondary ventilation systems formerly utilized at the WD Facility. WD will require decontamination and demolition of:

   a. an abandoned air handling unit located in WD Room 4 and its associated ducting,

   b. the Sludge Mixing Station HEPA Exhaust System (EF-3) located exterior to the WD Facility on the roof above WD Room 5,

   c. the 5 ton chiller unit located exterior to the WD Facility outside of WD Room 12,

   d. two small independent air conditioning units; one located on the roof above WD-7 in WD Room 1 and the second one located exterior to the WD Facility suspended from WD Room 6 window,

   e. two exhaust fans located on the roof of the WD Facility,

   f. a Cyclone Dust Separator, with its associated ducting, located in WD Room 101.

2. Work tasks will include but are not limited to:

a. Collection and removal of the Freon gas from the Air Conditioning units prior to removal,

3. Isolation of all energy sources of power (i.e., electrical, steam, and air) to the listed units prior to removal or demolition,

4. Decontamination and disposal of the HEPA ventilation ducting and filter bank,

5. Decontamination and removal of Room WD-4 air supply unit and its ducting,

6. Draining and disposal of Glycol from the supply and return lines to the heating and cooling systems,

7. Decontamination, removal, and disposal of the cyclone dust separator unit and its associated exhaust ductwork,

8. Removal and disposal of the associated miscellaneous ventilation components associated with the above systems.

9. Any refrigerant must be pumped down, collected, and disposed by a licensed technician.

B. The existing high efficiency particulate air (HEPA) filter bank located outside of WD on the roof above WD-5 shall be maintained and operated by the Subcontractor, per Section 01940 Attachment I MD-50001 FM-PM-039, and 060, until Phase I activities are completed. Differentials across each stage will be monitored to ensure proper operation of the filter bank. The pre-filter stage particularly will need to be monitored for build-up and maintenance performed as necessary to maintain proper airflow through the filter bank.

1.2 RELATED SECTIONS

A. Section 01110 Safety and Health

B. Section 01130 Asbestos

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01210 Facility Surveillance and Maintenance

F. Section 01300 Submittals

G. Section 01460 Integrated Work Control

H. Section 01550 Waste Management

I. Section 01900 Utility Isolation and Removal

J. Section 01915 Electrical Equipment Removal

K. Section 01940 Attachment I MD-50001 FM-PM-039, and 060

L. Section 16000 Electrical

1.3 DESCRIPTION OF THE SECONDARY VENTILATION SYSTEMS

A. Supply Air Systems

1. The abandoned heating and air conditioning unit (AC-3) located outside of the WD Facility and south of WD-12 was previously used to supply heated or chilled glycol to the Air Supply System's temperature control coils. The coils were either heated or cooled by recirculating the heated or cooled glycol. WDA supply air was passed over and through thermal transfer coils in the air supplies assembly before entering the facility to maintain facility temperature.

2. An abandoned air-handling unit (AH-1) is located in WD-4. It has been previously used to supply air to the first floor of the WD Facility.

3. An independent air conditioning unit located above WD-7 supplies cooling air to the WD-7 Lab area.

4. An independent air conditioning unit located outside and supported from the WD-6 window supplied air to the WD-6 office area.

B. Air Exhaust Systems

1. The two motorized exhaust fans were previously used to exhaust air from over the Clariflocculators in WD Room 101 to the atmosphere. The fans are located exterior to the facility on the roof over WD-101.

2. An Exhaust System (EF-3) utilizing a three stage HEPA filter bank, located exterior to the WD Facility on the roof above WD Room 5, was used to maintain a negative pressure on WD Room 1 Sludge Mixing Station and WD Room 5 Tritium Distillation Unit.

3. A cyclone dust separator system is located exterior to the facility on the East Dock. It was used to collect the dust from the chemical mixing tanks located in WD Room 101 for disposal. The system collected any dust generated from adding or mixing chemicals for injection into the Clariflocculators tanks.

1.4 WORK PHASES

A. The work under this section will be considered part of Phase I of the overall project work and will include verification of present ventilation system status, decontamination and demolition of the ventilation systems. In accordance with the approved Fire Safety Hazard Analysis, the building fire sprinkler system will be deactivated; therefore, heating will not be required. The contractor will lock out any energy sources to the identified units and verify their isolation and pump down and collect the glycol for reuse by plant utilities. The refrigerant in AC-3 and the two independent air conditioning units described in paragraph 1.3 will be pumped down, collected, and disposed by a licensed technician.

B. Once all systems are pumped down, evacuated, and locked/tagged out, decontamination and removal of system components may commence per a phased schedule prepared and submitted by the Subcontractor and reviewed by the Buyer.

NOTE: During work under this section, the building's "environmental envelope" shall not be breached. The Subcontractor shall ensure that all building rooms are maintained at a negative pressure with respect to the outside atmospheric pressure.

1.5 REFERENCES

A. Appendix B WD Project Drawings

B. Section 01925 ATTI – MD-50003 FM-PMT-002, In Place Teak Test Procedure

C. Codes

1. ERDA 76-21-79 Nuclear Air Cleaning Handbook

2. 40 CFR Part 82 Protection of the Stratospheric Ozone

1.6 SUBMITTAL

A. The Subcontractor shall submit for approval a Work Package that covers Secondary Ventilation Systems Decontamination and Demolition. The work package must at a minimum contain the items identified below, including the means and methods of maintaining WD's "envelope." The Work Package shall

be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with the Secondary Ventilation Systems Demolition covered in this section until written approval is received regarding this HOLD POINT from the Buyer.

NOTE: Work Packages for the removal activities will be reviewed and approved by the Buyer and made available to the DOE, USEPA and the OEPA on request. See Section 01300 Submittals and Section 01460 Integrated Work Control for specific details.

B. The Subcontractor shall provide copies of refrigerant technician's licenses.

PART 2 PRODUCTS

2.1 MATERIALS

A. The subcontractor shall provide:

1. Portable HEPA exhaust units – as necessary for localized radiological control

   a. Equipment having a HEPA filter shall be tested by the Subcontractor prior to use on-site. HEPA filter replacement requires retesting of the equipment. All HEPA filtered equipment shall be tested to meet the requirements of ASTM D-2986 every two years of use. Re-testing is also required on equipment after maintenance has been performed or if the equipment has been subjected to any activity that may affect the filter efficiency and/or seals. The filter may be tested in place per MD-50003 FM-PMT-002.

2. Refrigerant recycling equipment

B. The buyer has available for the subcontractor's use:

1. Three temporary portable HEPA Filters units with a minimum capacity of 500 CFM.

   NOTE: The Subcontractor may utilize existing equipment items within this section for accomplishment of work with the prior approval of the buyer. Utilization of the equipment shall be "as is" condition; see Special Conditions, Article 1.10, Government Property Furnished "As Is".

PART 3 EXECUTION

3.1 PREPARATION

A. Lockout/Tagout of energized systems per Section 01110 Safety and Health and Section 01900 Utility Isolation and Removal.

B. Pump down of glycol for waste disposition per Section 01550 Waste Management.

C. Evacuation of refrigerant condensing units for waste disposition per Section 01550 Waste Management.

3.2 OPERATION

A. Monitoring of building differential air pressure(s)

1. System is to be operated per MD-50001 FM-PM-060.

B. Removal of ventilation supply and exhaust equipment

1. Ventilation equipment must be decontaminated or contained, removed, and packaged as waste in accordance with Section 01550 Waste Management.

2. Ventilation supply and exhaust ducts shall be decontaminated or any loose contamination fixed prior to removed to ensure the potential spread of radiological contamination is minimized prior to building demolition.

C. Removal of Air Conditioning Units

1. Air Conditioning units inside of the facility must be decontaminated or contained, removed, and disposed as Low Level Waste (LLW) in accordance with Section 01550 Waste Management.

2. Air Conditioning units located outside of the facility shall be decontaminated or any loose contamination fixed prior to removed to ensure the potential spread of radiological contamination is minimized prior to demolition and disposal.

END OF SECTION

SECTION 01930

BUILDING 23 FACILITY

DISMANTLEMENT AND DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All above-grade dismantlement and demolition of Building 23 concrete/masonry, structural steel, and roofing, including but not limited to:

1. Cast-in place floors and footers, per Drawing No. 302300 02001.

2. Pre-stressed columns and girders sections

3. Masonry block walls

4. Built-up insulated asphalt roof

5. Structural steel items including but not limited to miscellaneous support structures, handrails, stairs, walkways, canopies, platforms, large doors, roof trusses, ventilation louvers and framed wall openings.

B. Building 23 Structure Description

1. Building 23 is a single-story warehouse with an approximate floor space of 3,422 square feet. The facility is constructed of poured-in-place reinforced concrete and concrete structures. The facility is constructed with 8-in. concrete block walls and a built up roof. The floor is a 6-in. concrete pad. An outdoor dock is used for loading and unloading activities. (See Drawing No. 302300 02001 in Appendix B).

C. The items covered under this section are considered sources of potential radiological contamination and releasable inventory. Consult Section 01150 Work in Radiologically Contaminated Areas and Appendix A, Reconnaissance Level Characterization Report, for detailed information.

1.2 WORK PHASES

A. This section's work is considered Phase V of the overall project work, see Section 01010 Summary of Work. Phase V, demolition of Building 23, shall not be scheduled for decontamination and demolition activities until after March 1,

2003. Phase V work includes all activities necessary to accomplish utilities isolation, decontamination, dismantlement, and demolition activities of Building 23. The elements of this phase will consist of decontamination of the building, and demolition of the building's structure, concrete pad, loading dock, and footers.

1.3 RELATED SECTIONS

A. Section 01010 Summary of Work

B. Section 01110 Safety and Health

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01460 Integrated Work Control

F. Section 01550 Waste Management

G. Section 01940 WD Ventilation System Dismantlement and Demolition

H. Section 01945 Below Grade Removals

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B; WD Project Drawings

1. Drawing No. 302300 02001, Building 23 Construction

C. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23, and 125 (ATS)

D. Appendix G MD-10484, Building 23 Basis of Interim Operation

E. Appendix H MD-10532, Building 23 Fire Hazardous Analysis

F. Appendix O MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Materials, April 2002

G. Appendix Q Photographs, Building 23

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926, Subpart T – Demolition - Sections 850-860

2. 40 CFR 61, Subpart M, National Emission Standard for Asbestos

3. 40 CFR 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

4. 10 CFR 835, Occupational Radiation Protection.

B. National Fire Protection Association (NFPA):

1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures

2. NFPA 241-93 Standard for Safeguarding Construction, Alteration and Demolition activities.

C. DOE N441-1 Radiation Protection of the Public and the Environment

D. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

E. Ohio Administrative Code (OAC): 3745-20 Asbestos Emission Control

1.6 SUBMITTALS

A. Renovations involving asbestos and building demolitions (with or without asbestos) are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Federal regulatory authority has been delegated to the State of Ohio. For the Mound Plant, the requirements are administered by the Regional Air Pollution Control Agency (RAPCA) on behalf of the Ohio EPA (OEPA).

The Subcontractor shall submit notifications to RAPCA for this demolition project in accordance with Section 01190 Environmental Compliance. The Subcontractor shall not proceed with Building 23 decontamination, dismantlement, and demolition activities covered in this section until all associated RAPCA notifications are satisfied.

B. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for WD Project demolition activities. Activities with the

potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval.

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions standards analysis for Building 23 dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may be required to perform additional area decontamination to bring the levels below the approved standard.

Then, per NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the USEPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead-time for work package approval process.

C. Engineering survey in accordance with 29 CFR 1926 – Subpart T, Demolition. **A Professional Structural Engineer certification is required**.

D. The Subcontractor shall submit for approval Work Package(s) that covers Building 23 decontamination, dismantlement, and Demolition, and at a minimum, contains the items identified below. The Work Package(s) shall be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with The Building 23 dismantlement and demolition covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

The work packages shall contain:

1. Detailed method and sequence of radiological decontamination, as applicable.

2. Detailed method and sequence of performing radionuclide inventory activities for the Buyer's NESHAPs analysis.

3. Detailed methods and sequence for pre-demolition dismantlement of Building 23 components including removal of any lead-lined steel tanks, lead piping, PCB ballasts, and associated items covered under this section, including equipment to be used.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of Building 23 to prevent potential radiological release.

5. A Waste Management Plan that covers the Building 23 Dismantlement and Demolition scope of work in this Section in accordance with Section 01550 Waste Management.

6. An Asbestos Abatement Plan in accordance with Section 01130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Method for verifying that the demolition process has been performed per work plan including the isolation of utilities to the building.

9. Location of equipment decontamination area, personnel decontamination areas/change-rooms, debris staging areas and equipment/material laydown areas.

10. Methods of protecting existing above-grade and below-grade non-Building 23 services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Detailed methods and sequence of demolition activities, including the equipment to be used.

14. Methods to be used for protecting lay down and demolition areas from additional contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300 ATT I Submittal Schedule.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of work will potentially involve the following activities: Work Package submittal and approval process; possible decontamination and dismantling activities; radionuclide inventory activities; NESHAPs submittal

and approval process based on inventory numbers and dismantlement, demolition and notification activities.

1. Project breakdown by activities as described in paragraph 1.2 shall be followed. The Building 23 dismantlement and demolition activities as covered in this section fall under Phase V.

2. In addition, there are activities/submittals listed below that must take place prior to dismantlement and demolition. These are HOLD POINTS and must be adhered to.

B. Prior to demolition of the building, all tritium exit lights shall be removed, segregated and transferred to the Buyer.

C. Building 23 decontamination, dismantlement and demolition activities shall not begin until:

1. Receipt of written approval from the Buyer for the Decontamination, Dismantlement, and Demolition Work Package discussed in paragraph 1.6C.

2. The NESHAPs analysis is completed and, if required, approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of Utility Isolation and Removal activities that impact the building and its systems as covered in Section 01900.

5. Post construction shall include decontamination of subcontractor's equipment and demobilization.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the execution of the work.

C. Surfactants:

1. CP-225 CHIL-SORB by Childers.

2. Buyer approved equal.

D. Encapsulants/Sealants:

1. CP-240 CHIL-LOCK by Childers

2. Certane 2050 by Certified Technologies

3. Eppco #1 by Expert Environmental Products

4. Serpiloc by International Protection Coatings Corp.

5. Buyer approved equal.

E. Equipment Decontamination Area:

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The location for installation must be approved by the Buyer.

2. The decontamination area shall be constructed to collect and contain all wastes, solid and/or liquids generated during decontamination process.

3. The decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. Subcontractor shall ensure that adequate laydown space has been cleared and

barriers have been established.

C. Personnel and equipment decontamination areas are established.

D. All site permits necessary to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. The Subcontractor shall be responsible to ensure that the control measures are in place throughout the course of the project for slope protection and controls to reduce erosion, sedimentation, and water pollution through the use of erosion control devices in accordance with Section 01190 Environmental Compliance.

G. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

H. Items shall have contamination fixed or removed prior to dismantlement and if applicable, prior to removing local containment, negative ventilation or building enclosures, in accordance with Section 01150 Work in Radiologically Contaminated Areas.

3.2 APPLICATION

A. The contractor shall prevent damage to any adjacent structures, materials, and equipment including overhead and underground utilities during demolition activities. Activities to fell concrete structures outside their footprint require prior approval. Activities to fell concrete structures shall maintain the integrity of porous surfaces to the extent practical to minimize dispersal of debris. If concrete dust is generated as a result of demolition operations (due to crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. Demolition:

1. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production.

2. Subcontractor shall apply mechanical means of cutting and removing concrete/masonry and structural steel to the largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

3. Debris generated during structural steel demolition, shall be collected and managed in accordance with Section 01550 Waste Management.

4. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

5. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

6. Because of contamination levels, some concrete may require local containment for demolition activities.

7. Use of explosives is prohibited.

3.3 SPECIAL INSTRUCTIONS

A. Doors

1. The Subcontractor shall remove all doors (wood and/or steel) and place them in appropriate containers (see Section 01550 Waste Management).

B. Lead Materials

1. The Subcontractor shall segregate all lead materials (e.g., flashing, vent stacks, lead lined tanks, pipe joint materials, etc.) and place them in appropriate containers in accordance with Section 01550 Waste Management.

C. Wall and Roof Louvers

1. The Subcontractor shall remove louvers and roof vents during exterior concrete/masonry removal and place in appropriate containers (as specified in Section 01550 Waste Management).

D. Roofing

1. All roofing materials shall be demolished with the concrete roof structure wherever possible. Asphalt-based roofing materials are assumed to contain asbestos and shall be handled in accordance with the EPA NESHAP regulation (40 CFR 61, subpart M) and OSHA (29 CFR 1926.1101).

E. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Health and Safety and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The subcontractor shall construct the decontamination area to

decontaminate all of his equipment as needed. The decontamination area shall be constructed to contain all contaminated soil and liquids generated. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

3. The subcontractor shall decontaminate their equipment prior to release by the Buyer from the site.

4. The subcontractor shall take all precautions to prevent overspray from leaving the equipment decontamination area.

3.4 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.5 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 01935

WD FACILITY

DECONTAMINATION, DISMANTLEMENT AND DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All above-grade dismantlement and demolition of WD Facility concrete/masonry, structural steel, and roofing, including but not limited to:

1. Cast-in place walls, floors, footers per Drawing No. 351601 2004 Sheet A4 and 351600 2003 Sheet 1303.

2. Pre-stressed columns, girders, and tee sections

3. Masonry block walls

4. Built-up insulated asphalt roof

5. Structural steel items including but not limited to miscellaneous support structures, handrails, stairs, walkways, canopies, platforms, large doors, roof trusses, ventilation louvers and framed wall openings.

B. WD Facility Structure Description

1. WD Facility is a two-story structure with an approximate floor space of 44,000 square feet. The First Floor is constructed of poured-in-place reinforced concrete and concrete structures. The Second Floor is constructed of poured-in place reinforced concrete, concrete columns and beams, and concrete block. The WDA roof is constructed of pre-stressed concrete sections, a poured concrete cap, with an insulated built-up membrane of asphalt. (See WD Project Drawings in Appendix B). WD roof is constructed of steel trusses with an insulated built-up membrane of asphalt. (See Drawings in Appendix B).

C. The items covered under this section are considered sources of potential radiological contamination and releasable inventory. See Section 01150 Work in Radiologically Contaminated Areas and Appendix A, Reconnaissance Level Characterization Report.

1.2 WORK PHASES

A. This project is divided into work Phases I through IV as outlined in Section 01010 Summary of Work. The work covered in this section (Section 01935) is performed over more than one of the aforementioned work phases. The elements of this envelope consist of the building structure, the ability to maintain a negative pressure to the outside, the building exhaust air HEPA filter bank, and effluent monitoring of the discharge air from the filter bank to the outside environment.

Work Phases II though IV include all remaining activities performed after the building "environmental envelope" has been breached.

1.3 RELATED SECTIONS

A. Section 01010 Summary of Work

B. Section 01110 Safety and Health

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01460 Integrated Work Control

F. Section 01550 Waste Management

G. Section 01925 Secondary Ventilation Systems Demolition

H. Section 01940 Buildings WD Ventilation System Dismantlement and Demolition

I. Section 01945 Below Grade Removals

J. Section 16000 Electrical

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

1. Drawing No. 351600 2003 WD Construction, Sheet 1303

2. Drawing No. 351601 2004 WDA Construction, Sheet A4

C. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23, and 125 (ATS)

D. Appendix D MD-10481, Building WD Auditable Safety Analysis

E. Appendix F MLM-3842, Building WD Fire Hazardous Analysis

F. Appendix O MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Materials, April 2002

G. Appendix P Photographs, Building WD

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926, Subpart T – Demolition - Sections 850-860

2. 40 CFR 61, Subpart M, National Emission Standard for Asbestos

3. 40 CFR 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

4. 10 CFR 835, Occupational Radiation Protection.

B. National Fire Protection Association (NFPA):

1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures

2. NFPA 241-93 Standard for Safeguarding Construction, Alteration and Demolition activities.

C. DOE N441-1 Radiation Protection of the Public and the Environment

D. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

E. Ohio Administrative Code (OAC): 3745-20 Asbestos Emission Control

1.6 SUBMITTALS

A. Renovations involving asbestos and building demolitions (with or without asbestos) are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Federal regulatory authority has been delegated to the State of Ohio. For the Mound Plant, the requirements are

administered by the Regional Air Pollution Control Agency (RAPCA) on behalf of the Ohio EPA (OEPA).

The Subcontractor shall submit notifications to RAPCA for this demolition project in accordance with Section 01190 Environmental Compliance. The Subcontractor shall not proceed with WD Facility decontamination, dismantlement, and demolition activities covered in this section until all associated RAPCA notifications are satisfied.

B. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for WD Project demolition activities. Activities with the potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval. The present radionuclide inventory in the WD Facility alone, is estimated to be 0.3 Ci. This inventory would provide an EDE to the public (Building 87) of 0.5 mrem per year. The estimated radionuclide project inventory to achieve an EDE less than 0.1 mrem per year is 0.06 Ci. (For dose calculations: the distance to the nearest inhabited facility, Building 87, is 165 meters.)

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions standards analysis for WD Facility dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may be required to perform additional area decontamination to bring the levels below the approved standard.

Then, per NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the USEPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead-time for work package approval process.

C. Engineering survey in accordance with 29 CFR 1926 – Subpart T, Demolition. **Professional Structural Engineer certification is required**.

D. The Subcontractor shall submit for approval Work Package(s) that covers each phase of the WD Facility decontamination, dismantlement, and demolition, and at a minimum, contains the items identified below. The Work Package(s) shall be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with The WD Facility dismantlement and

demolition covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

NOTE: Work Packages for Phases I and IV activities will be reviewed and approved by the Buyer and made available to the DOE, USEPA and the OEPA on request. Work Packages for Phase II and III activities will be reviewed and approved by the Buyer, DOE, USEPA and OEPA. There are significant differences in review periods between the two phases. See Section 01300 Submittals and Section 01460 Integrated Work Control for specific details.

The work packages shall contain:

1. Detailed method and sequence of radiological decontamination, as applicable.

2. Detailed method and sequence of performing radionuclide inventory activities for the Buyer's NESHAPs analysis.

3. Detailed methods and sequence for pre-demolition dismantlement of WD Facility components including removal of lead from lined steel tanks, cast iron piping with lead joints, PCB ballasts, and associated items covered under this section, including equipment to be used.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of WD to prevent potential radiological release for work performed under Phase I.

5. A Waste Management Plan that covers the WD Facility Dismantlement and Demolition scope of work in this Section in accordance with Section 01550 Waste Management.

6. An Asbestos Abatement Plan in accordance with Section 01130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Method for verifying that the demolition process has been performed per work plan including the isolation of utilities to the building.

9. Location of equipment decontamination area, personnel decontamination areas/change-rooms, debris staging areas and equipment/material laydown areas.

10. Method of protecting existing above-grade and below-grade non-WD Facility services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Detailed methods and sequence of demolition activities including the equipment to be used.

14. Methods to be used for protecting lay down and demolition areas from additional contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300 ATT I Submittal Schedule.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of work will potentially involve the following activities: Work Package submittal and approval process; possible decontamination and dismantling activities; radionuclide inventory activities; NESHAPs submittal and approval process based on inventory numbers and dismantlement, demolition and notification activities.

1. Project breakdown by phases as described in Paragraph 1.2 shall be followed. The WD Facility dismantlement and demolition activities as covered in this section fall under Phases I through IV.

2. In addition, there are activities/submittals listed below that must take place prior to dismantlement and demolition. These are HOLD POINTS and must be adhered to.

B. Prior to demolition of the building, all tritium exit lights shall be removed, segregated and transferred to the Buyer.

C. WD Facility decontamination, dismantlement and demolition activities shall not begin until:

1. Receipt of written Buyer's approval of the Decontamination, Dismantlement, and Demolition Work Package discussed in paragraph 1.6C.

2. The NESHAPs analysis is completed and, if required, approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of Utility Isolation and Removal activities that impact the building and its systems as covered in Section 01900.

5. Post construction shall include decontamination of subcontractor's equipment and demobilization.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the execution of the work.

C. Surfactants:

1. CP-225 CHIL-SORB by Childers.

2. Buyer approved equal.

D. Encapsulants/Sealants:

1. CP-240 CHIL-LOCK by Childers

2. Certane 2050 by Certified Technologies

3. Eppco #1 by Expert Environmental Products

4. Serpiloc by International Protection Coatings Corp.

5. Buyer approved equal.

E. Equipment Decontamination Area:

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The location for installation must be approved by the Buyer.

2. The decontamination area shall be constructed to collect and contain all wastes, solid and/or liquids generated during decontamination process.

3. The decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. The Subcontractor shall ensure that adequate laydown space has been cleared and barriers have been established.

C. Personnel and equipment decontamination areas are established.

D. All site permits necessary to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. The Subcontractor shall be responsible to ensure that the control measures are in place throughout the course of the project for slope protection and controls to reduce erosion, sedimentation, and water pollution through the use of erosion control devices in accordance with Section 01190 Environmental Compliance.

G. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

H. Items shall have contamination fixed or removed prior to dismantlement and if applicable, prior to removing local containment, negative ventilation or building

enclosures, in accordance with Section 01150 Work in Radiologically Contaminated Areas.

3.2 APPLICATION

A. The contractor shall prevent damage to any adjacent structures, materials, and equipment including overhead and underground utilities during demolition activities. Activities to fell concrete structures outside their footprint require prior approval. Activities to fell concrete structures shall maintain the integrity of porous surfaces to the extent practical to minimize dispersal of debris. If concrete dust is generated as a result of demolition operations (due to crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. Demolition:

1. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production.

2. Subcontractor shall apply mechanical means of cutting and removing concrete/masonry and structural steel to the largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

3. Debris generated during structural steel demolition, shall be collected and managed in accordance with Section 01550 Waste Management.

4. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

5. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

6. Because of contamination levels, some concrete may require local containment for demolition activities.

7. Use of explosives is prohibited.

3.3 SPECIAL INSTRUCTIONS

A. Doors

1. The Subcontractor shall remove all doors (wood and/or steel) and place them in appropriate containers (see Section 01550 Waste Management).

B. Lead Materials

1. The Subcontractor shall segregate all lead materials (e.g., flashing, vent stacks, lead from lined tanks, pipe joint materials, etc.) and place them in appropriate containers in accordance with Section 01550 Waste Management.

C. Wall and Roof Louvers

1. The Subcontractor shall remove louvers and roof vents during exterior concrete/masonry removal and place in appropriate containers (see Section 01550 Waste Management).

D. Roofing

1. All roofing materials shall be demolished with the concrete roof structure wherever possible. Asphalt-based roofing materials are assumed to contain asbestos and shall be handled in accordance with the EPA NESHAP regulation (40 CFR 61, subpart M) and OSHA (29 CFR 1926.1101).

E. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Safety and Health and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The subcontractor shall construct the decontamination area to decontaminate all of his equipment as needed. The decontamination area shall be constructed to contain all contaminated soil and liquids generated. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

3. The decontamination area shall be available for the subcontractor to decontaminate their equipment prior to release form site.

4. Precautions shall be taken to prevent overspray from leaving the equipment decontamination area. If directed by the contractor, engineering controls such as visqueen tarpaulins shall be hung vertically at the edge of the area to control overspray.

3.4 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.5 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 01935

WD FACILITY

DECONTAMINATION, DISMANTLEMENT AND DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All above-grade dismantlement and demolition of WD Facility concrete/masonry, structural steel, and roofing, including but not limited to:

1. Cast-in place walls, floors, footers per Drawing No. 351601 2004 Sheet A4 and 351600 2003 Sheet 1303.

2. Pre-stressed columns, girders, and tee sections

3. Masonry block walls

4. Built-up insulated asphalt roof

5. Structural steel items including but not limited to miscellaneous support structures, handrails, stairs, walkways, canopies, platforms, large doors, roof trusses, ventilation louvers and framed wall openings.

B. WD Facility Structure Description

1. WD Facility is a two-story structure with an approximate floor space of 44,000 square feet. The First Floor is constructed of poured-in-place reinforced concrete and concrete structures. The Second Floor is constructed of poured-in place reinforced concrete, concrete columns and beams, and concrete block. The WDA roof is constructed of pre-stressed concrete sections, a poured concrete cap, with an insulated built-up membrane of asphalt. (See WD Project Drawings in Appendix B). WD roof is constructed of steel trusses with an insulated built-up membrane of asphalt. (See Drawings in Appendix B).

C. The items covered under this section are considered sources of potential radiological contamination and releasable inventory. See Section 01150 Work in Radiologically Contaminated Areas and Appendix A, Reconnaissance Level Characterization Report.

1.2 WORK PHASES

A. This project is divided into work Phases I through IV as outlined in Section 01010 Summary of Work. The work covered in this section (Section 01935) is performed over more than one of the aforementioned work phases. The elements of this envelope consist of the building structure, the ability to maintain a negative pressure to the outside, the building exhaust air HEPA filter bank, and effluent monitoring of the discharge air from the filter bank to the outside environment.

Work Phases II though IV include all remaining activities performed after the building "environmental envelope" has been breached.

1.3 RELATED SECTIONS

A. Section 01010 Summary of Work

B. Section 01110 Safety and Health

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01460 Integrated Work Control

F. Section 01550 Waste Management

G. Section 01925 Secondary Ventilation Systems Demolition

H. Section 01940 Buildings WD Ventilation System Dismantlement and Demolition

I. Section 01945 Below Grade Removals

J. Section 16000 Electrical

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

1. Drawing No. 351600 2003 WD Construction, Sheet 1303

2. Drawing No. 351601 2004 WDA Construction, Sheet A4

C. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23, and 125 (ATS)

D. Appendix D MD-10481, Building WD Auditable Safety Analysis

E. Appendix F MLM-3842, Building WD Fire Hazardous Analysis

F. Appendix O MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Materials, April 2002

G. Appendix P Photographs, Building WD

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926, Subpart T – Demolition - Sections 850-860

2. 40 CFR 61, Subpart M, National Emission Standard for Asbestos

3. 40 CFR 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

4. 10 CFR 835, Occupational Radiation Protection.

B. National Fire Protection Association (NFPA):

1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures

2. NFPA 241-93 Standard for Safeguarding Construction, Alteration and Demolition activities.

C. DOE N441-1 Radiation Protection of the Public and the Environment

D. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

E. Ohio Administrative Code (OAC): 3745-20 Asbestos Emission Control

1.6 SUBMITTALS

A. Renovations involving asbestos and building demolitions (with or without asbestos) are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Federal regulatory authority has been delegated to the State of Ohio. For the Mound Plant, the requirements are

administered by the Regional Air Pollution Control Agency (RAPCA) on behalf of the Ohio EPA (OEPA).

The Subcontractor shall submit notifications to RAPCA for this demolition project in accordance with Section 01190 Environmental Compliance. The Subcontractor shall not proceed with WD Facility decontamination, dismantlement, and demolition activities covered in this section until all associated RAPCA notifications are satisfied.

B. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for WD Project demolition activities. Activities with the potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval. The present radionuclide inventory in the WD Facility alone, is estimated to be 0.3 Ci. This inventory would provide an EDE to the public (Building 87) of 0.5 mrem per year. The estimated radionuclide project inventory to achieve an EDE less than 0.1 mrem per year is 0.06 Ci. (For dose calculations: the distance to the nearest inhabited facility, Building 87, is 165 meters.)

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions standards analysis for WD Facility dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may be required to perform additional area decontamination to bring the levels below the approved standard.

Then, per NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the USEPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead-time for work package approval process.

C. Engineering survey in accordance with 29 CFR 1926 – Subpart T, Demolition. **Professional Structural Engineer certification is required**.

D. The Subcontractor shall submit for approval Work Package(s) that covers each phase of the WD Facility decontamination, dismantlement, and demolition, and at a minimum, contains the items identified below. The Work Package(s) shall be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with The WD Facility dismantlement and

demolition covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

NOTE: Work Packages for Phases I and IV activities will be reviewed and approved by the Buyer and made available to the DOE, USEPA and the OEPA on request. Work Packages for Phase II and III activities will be reviewed and approved by the Buyer, DOE, USEPA and OEPA. There are significant differences in review periods between the two phases. See Section 01300 Submittals and Section 01460 Integrated Work Control for specific details.

The work packages shall contain:

1. Detailed method and sequence of radiological decontamination, as applicable.

2. Detailed method and sequence of performing radionuclide inventory activities for the Buyer's NESHAPs analysis.

3. Detailed methods and sequence for pre-demolition dismantlement of WD Facility components including removal of lead from lined steel tanks, cast iron piping with lead joints, PCB ballasts, and associated items covered under this section, including equipment to be used.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of WD to prevent potential radiological release for work performed under Phase I.

5. A Waste Management Plan that covers the WD Facility Dismantlement and Demolition scope of work in this Section in accordance with Section 01550 Waste Management.

6. An Asbestos Abatement Plan in accordance with Section 01130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Method for verifying that the demolition process has been performed per work plan including the isolation of utilities to the building.

9. Location of equipment decontamination area, personnel decontamination areas/change-rooms, debris staging areas and equipment/material laydown areas.

10. Method of protecting existing above-grade and below-grade non-WD Facility services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Detailed methods and sequence of demolition activities including the equipment to be used.

14. Methods to be used for protecting lay down and demolition areas from additional contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of work will potentially involve the following activities: Work Package submittal and approval process; possible decontamination and dismantling activities; radionuclide inventory activities; NESHAPs submittal and approval process based on inventory numbers and dismantlement, demolition and notification activities.

1. Project breakdown by phases as described in Paragraph 1.2 shall be followed. The WD Facility dismantlement and demolition activities as covered in this section fall under Phases I through IV.

2. In addition, there are activities/submittals listed below that must take place prior to dismantlement and demolition. These are HOLD POINTS and must be adhered to.

B. Prior to demolition of the building, all tritium exit lights shall be removed, segregated and transferred to the Buyer.

C. WD Facility decontamination, dismantlement and demolition activities shall not begin until:

1. Receipt of written Buyer's approval of the Decontamination, Dismantlement, and Demolition Work Package discussed in paragraph 1.6C.

2. The NESHAPs analysis is completed and, if required, approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of Utility Isolation and Removal activities that impact the building and its systems as covered in Section 01900.

5. Post construction shall include decontamination of subcontractor's equipment and demobilization.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the execution of the work.

C. Surfactants:

1. CP-225 CHIL-SORB by Childers.

2. Buyer approved equal.

D. Encapsulants/Sealants:

1. CP-240 CHIL-LOCK by Childers

2. Certane 2050 by Certified Technologies

3. Eppco #1 by Expert Environmental Products

4. Serpiloc by International Protection Coatings Corp.

5. Buyer approved equal.

E. Equipment Decontamination Area:

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The location for installation must be approved by the Buyer.

2. The decontamination area shall be constructed to collect and contain all wastes, solid and/or liquids generated during decontamination process.

3. The decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. The Subcontractor shall ensure that adequate laydown space has been cleared and barriers have been established.

C. Personnel and equipment decontamination areas are established.

D. All site permits necessary to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. The Subcontractor shall be responsible to ensure that the control measures are in place throughout the course of the project for slope protection and controls to reduce erosion, sedimentation, and water pollution through the use of erosion control devices in accordance with Section 01190 Environmental Compliance.

G. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

H. Items shall have contamination fixed or removed prior to dismantlement and if applicable, prior to removing local containment, negative ventilation or building

enclosures, in accordance with Section 01150 Work in Radiologically Contaminated Areas.

3.2 APPLICATION

A. The contractor shall prevent damage to any adjacent structures, materials, and equipment including overhead and underground utilities during demolition activities. Activities to fell concrete structures outside their footprint require prior approval. Activities to fell concrete structures shall maintain the integrity of porous surfaces to the extent practical to minimize dispersal of debris. If concrete dust is generated as a result of demolition operations (due to crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. Demolition:

1. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production.

2. Subcontractor shall apply mechanical means of cutting and removing concrete/masonry and structural steel to the largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

3. Debris generated during structural steel demolition, shall be collected and managed in accordance with Section 01550 Waste Management.

4. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

5. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

6. Because of contamination levels, some concrete may require local containment for demolition activities.

7. Use of explosives is prohibited.

3.3 SPECIAL INSTRUCTIONS

A. Doors

1. The Subcontractor shall remove all doors (wood and/or steel) and place them in appropriate containers (see Section 01550 Waste Management).

B. Lead Materials

1. The Subcontractor shall segregate all lead materials (e.g., flashing, vent stacks, lead from lined tanks, pipe joint materials, etc.) and place them in appropriate containers in accordance with Section 01550 Waste Management.

C. Wall and Roof Louvers

1. The Subcontractor shall remove louvers and roof vents during exterior concrete/masonry removal and place in appropriate containers (see Section 01550 Waste Management).

D. Roofing

1. All roofing materials shall be demolished with the concrete roof structure wherever possible. Asphalt-based roofing materials are assumed to contain asbestos and shall be handled in accordance with the EPA NESHAP regulation (40 CFR 61, subpart M) and OSHA (29 CFR 1926.1101).

E. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Safety and Health and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The subcontractor shall construct the decontamination area to decontaminate all of his equipment as needed. The decontamination area shall be constructed to contain all contaminated soil and liquids generated. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

3. The decontamination area shall be available for the subcontractor to decontaminate their equipment prior to release form site.

4. Precautions shall be taken to prevent overspray from leaving the equipment decontamination area. If directed by the contractor, engineering controls such as visqueen tarpaulins shall be hung vertically at the edge of the area to control overspray.

3.4 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.5 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Work is located at the Mound Exit Project, a Government-owned facility, managed by BWXT of Ohio, Inc. (BWXTO), for the Department of Energy (DOE), in Miamisburg, Ohio.

B. Work consists of furnishing labor, materials, tools, equipment, supplies, and services (except that specified to be furnished or performed by others) to:

1. Decontamination and demolition of Waste Disposal Facility (WD/WDA), and associated exterior equipment, utilities, below grade drains, sumps, electrical ducts.

2. Decontamination and demolition of Building 23, and associated exterior equipment, utilities[1], below grade drains, sumps, and electrical ducts.

3. Decontamination and demolition of Alpha Treatment System (ATS), and associated exterior equipment, utilities[1], below grade drains, sumps, and electrical ducts.

1.2 DECONTAMINATION AND DEMOLITION FACILITIES

A. Building WD was built to receive and treat radioactive wastes from the Atomic Energy Commission's Mound Laboratory. The WD facility is a multi-story building with penthouses, a full basement and two partial sub-basements. It has an irregular shape and is 22 feet high, 135 feet wide, and 211 feet long. The total floor space of the two-story facility is approximately 28,800 square-foot.

B. Building 23 was originally constructed as a warehouse for the staging and shipping of low-level radioactive waste. The building was then used to store mixed and transuranic (TRU) mixed waste. The building floor was modified in 1994 to contain spills by coating the floor and installing trenches and dikes to allow storage of RCRA contaminated waste. Building 23 is a one-story, 3,422-square-foot, reinforced concrete block building with a built-up membrane roof,

[1]The following utilities will be shutdown and disconnected by Buyer: steam, condensate, compressed air, breathing compressed air, glycol, potable water, supply water. The Subcontractor shall isolate each of the listed utilities from the facilities to fit the "job sequence". Utilities not listed shall be shutdown and disconnected by the Subcontractor.

C. The Alpha Treatment System Building is a one-story, 2,000-square-foot, Butler Type building consisting of a steel frame covered by metal panels on a concrete slab floor. The facility is primary used for chemical treatment and packaging of radioactivity contaminated waste containing mostly water. Liquid effluents from the Mound's radioactive materials systems are piped or otherwise transported to the ATS Building for treatment.

D. Areas within the construction site containing specific source contaminated soils are designated as: Area PRS-153, 154, 159, 428, 439, and 440

1. PRS-153: Area 20, Radioactive Waste Line Break. Potential hazards are Sodium nitrate, Plutonium-238, Cesium-137, Thorium, and Cobalt-60.

2. PRS-154: Area 23, Thorium-230 Contaminated Soil. Potential hazards are Thorium-230.

3. PRS-159: Area 4A, Sewage Sludge Drying Pits Sanitary wastewater. Sludge from old sanitary wastewater treatment plant. Potential hazards are Cobalt-60, Cesium-137, Thorium-228/230/232, and Plutonium-238.

4. PRS-428, Hot Waste Line - Segment 7. Potential hazards: Cobalt-60, Cesium-137, Thorium-228/230/232, and Plutonium-238.

5. PRS-439, Hot Waste Line - Segment 4a. Potential hazards are Cobalt-60, Cesium-137, Thorium-228/230/232, and Plutonium-238.

6. PRS-440: Hot Waste Line - Segment 8. Potential hazards are Cobalt-60, Cesium-137, Thorium-228/230/232, and Plutonium-238.

NOTE: The above information is provided as potential hazards, and should be taken into consideration for demolition of the facilities.

E. Work Activity Phases and Sequencing

1. Work Phases

a. Phase I Work includes isolation of the facility power source and re-establishing power to designated vital equipment and all activities necessary to accomplished decontamination, dismantlement and demolition of the systems and equipment within the WD facility. WD has undergone extensive D&D cleanup in the past but sealed-in-place Pu^{238} contamination is present at several locations and identified as fixed contamination areas (FCAs). The integrity of the WD/WDA facility "environmental envelope" shall remain intact. The "environmental envelope" consists of the building structure, the

ability to maintain a negative pressure to the outside, the operation of the building exhaust air HEPA filter bank, and effluent monitoring of the discharge air from the filter bank to the outside environment.

b. Phase II Work includes all decontamination, dismantlement and demolition activities to remove the High and Low Risk Ventilation System and the building exhaust air HEPA filter bank, effluent monitoring system, and exhaust stack. This phase consists of removing the High and Low Risk Exhaust Ventilation ducting inside the building, the ventilation supply system on the roof, the High and Low Risk Ventilation System located on top of the WD facility, the building exhaust air HEPA filter bank, exhaust stack, and equipment used to monitor the effluent discharge air from the filter bank to the outside environment.

c. Phase III work includes all dismantlement and demolition activities to remove and dispose of the walls, roof, and decontaminated internal tanks and equipment too large to remove with the building intact, includes all remaining activities performed after the building "environmental envelope" has been breached (i.e. ventilation shutdown and loss of negative pressure).

d. Phase IV work includes decontamination, dismantlement, demolition, and disposal activities necessary to remove the WD facility pads, subsurface tanks, foundations, and associated underground utilities.

e. Phase V work includes all activities necessary to accomplish utilities isolation, decontamination, and removal of all equipment, waste containers, and tanks to dismantle and demolish Building 23, its pads, and foundations.

NOTE: Building 23 is currently being utilized and will not become available to the Subcontractor for Decontamination and Demolition activities until March 1, 2003.

f. Phase VI work includes activities necessary to accomplish utilities isolation, decontamination, and removal of all equipment, waste containers, and tanks to dismantle and demolish Building ATS, its pads, and foundations.

NOTE: Building ATS is currently being utilized and will not become available to the Subcontractor for Decontamination and Demolition activities until March 1, 2003.

2. Sequencing

   a. The isolation of non-electrical utilities at the source will be accomplished by Buyer. Electrical and communication utilities will be isolated as specified in these documents. The intent of this work sequence is to isolate building WD, ATS, and 23 structure(s) from all currently existing plant utilities, thus eliminate the work hazards associated with performing demolition activities within a electrically and mechanically energized facility per OSHA Regulation 29 CFR 1926.850, Subpart T.

3. Phase I Work Items Include:

   a. Isolation and removal of energy sources and other building utilities to the WD facility,

   b. Installation of temporary electrical power to the WD facility,

   c. Removal of WDA-9 and 110 Influent Waste Storage distribution System

   d. Removal of WDA-9, 10, 11, 110, and outside associated Clarifloculator Support Equipment,

   e. Removal of associated Beta Processing equipment and associated Piping System in WDA-9, 10, and 11,

   f. Removal of WD-08, 8, and 101 Influent Waste Storage distribution System,

   g. Removal of WD-1 Alpha Drumming Station and associated ventilation support system,

   h. Removal of WD-101 roof exhaust fans,

   i. Removal of WD-5 and Alpha Drumming Station HEPA ventilation system and its associated ducting,

   j. Decontaminate WDA Influent and Effluent Tanks,

   k. Decontaminate WD Influent and Effluent Storage Tanks,

   l. Decontaminate WD-101 Clarifloculator,

   m. Decontaminate WD-1 Sludge Drying Beds,

n. Decontaminate the remaining interior surface areas of WD and WDA,

o. Decontamination and removal of existing electrical equipment, steam and condensate systems, compressed air, and both the potable and supply water supply systems.

4. Phase II Work Items Include:

a. Removal and disposal of the WD High and Low Risk ventilation ducting,

b. Demolition of Building WDA's air supply ventilation system,

c. Demolition of Building WD's High and Low exhaust system,

d. Demolition of Building WD's ventilation system support platform, exhaust HEPA filter,

e. Demolition of Building WD's stack exhaust, and stack exhaust monitoring equipment

5. Phase III Work Items Include:

a. Removal of WDA-9 Evaporator Unit and associated Storage Tanks,

b. Removal of WDA-9, 10, and 110 Clarifloculator Tanks and associated Support Tanks,

c. Removal of WDA-10, and 11 waste sludge storage tanks and associated their support equipment and tanks,

d. Removal of Beta Processing Storage Tanks,

e. Removal of WDA-118A/B Glass Melter and associated Support Equipment,

f. Removal of WDA-08, 8, 1, and 101 Clarifloculator Tanks and associated Support Equipment,

g. Removal of WD-1 Sludge Drying Beds and associated support systems,

h. Demolition of Building WD structure,

i. Demolition of Building WDA structure,

6. Phase IV Work Items Include:

   a. Removal of below grade utilities systems, which include the excavation and removal of the following items: radioactive process piping and floor drains, process sumps, sanitary drains and sumps, storm drains, and electrical ductbank systems,

   b. Removal of four WD 30,000 gallon below ground waste influent tanks, four WDA 3,000 gallon influent tanks, four WD 30,000 gallon Effluent Tanks, and three WDA 4,000 gallon WDA Effluent Tanks.

   c. Removal of the WD facilities' pads and foundations,

7. Phase V Work Items Include:

   a. Isolation and removal of energy sources to Building 23 and removal of other Building 23 utilities.

   b. Installation of Building 23 temporary electrical power.

   c. Decontamination and removal of any Building 23 equipment, drums, and tanks.

   d. Decontamination of Building 23 walls and floors.

   e. Demolition and disposal of the Building 23, Building 23 pads and foundations,

8. The Phase VI Work Items include:

   a. Isolation and removal of Building ATS utilities.

   b. Installation of Building ATS temporary electrical power.

   c. Decontamination and removal of any Building ATS equipment, drums, and tanks,

   d. Decontamination of Building ATS walls and floors.

   e. Demolition and disposal of the Building ATS, Building ATS pads and foundations.

1.3 SITE RESTORATION

A. Following removal of buildings WD, 23, and ATS structures, the Subcontractor shall leave the construction site and any resulting depressions in a safe environmental configuration. The construction site shall meet the required construction erosion control, safety regulations, and guidelines for potentially radiologically contaminated sediment and non-seeded run-off areas.

1.4 WD/WDA SOUTH ASPHALT AREA

A. The southwest WD/WDA Asphalt Area, shown in Drawing No. WD002 WD Project Mechanical Utilities Isolation, is a non-regulated site administrative control over radiologically contaminated soils. At all times during this project, this area shall be maintained in an intact configuration and protected from damage.

1.5 SUBMITTALS

A. Provide submittal information in accordance with Sections 01300, Submittals and Submittal Schedule, Attachment I.

B. Submittal Requirements are included in each Technical Section.

1.6 SECURITY

A. Work Requirements

1. A list of all work force personnel expected to work on site shall be submitted to Security for approval and badging 5 working days prior to their arrival.

2. Uncleared personnel may be utilized to perform contracted work.

3. All subcontractor personnel used to perform work on site shall be United States Citizens.

1.7 BUYER INTERFACE

A. The Buyer's Technical Representative shall perform Inspection and Acceptance activities to ensure work performed is in accordance with specified requirements; and includes participation in testing, inspections, and approval of submittals.

B. Submittal of the Construction Daily Report shall be in accordance with Specifications Section 01300 Submittals, and the Subcontract Special Conditions Article 2.2, Exhibit 2.1.

1. Requests for electrical outages and requests to shutdown other utilities that

have been isolated by Buyer shall be in writing and should be submitted along with the Construction Daily Report. The system outages shall be requested a minimum of seven (7) working days in advance of need to allow for coordination with the Buyer. This coordination shall be through the person of the Buyer's Technical Representative (BTR).

2. Request for Radiation Work Permits (RWP) shall be in writing and submitted along with the Construction Daily Report. The RWP shall be requested a minimum of seven (7) working days in advance of need.

3. Request for special work permits (i.e. confined space permits, excavation permits, etc.) shall be in writing and submitted along with the Construction Daily Report. The necessary permit shall be requested a minimum of forty-eight (48) hours in advance of need.

1.8 SPECIFICATIONS AND DRAWINGS

A. Specifications

1. The specifications are directed to the Subcontractor, unless specifically noted otherwise.

2. The term "Work" means the entire completed construction or the various separately identifiable parts required by the Contract Documents. Work includes labor, materials, equipment, and services provided by the Subcontractor to fulfill the contract requirements.

3. The term "provide" means to furnish, install, and be ready for intended use.

B. Drawings

1. Reference WD Project Drawings listed in Appendix B are furnished to the Subcontractor for information only.

2. Reference Drawings cannot be relied on exclusively to prepare quantity takeoffs, pricing, and/or work planning.

C. Drawing No. WD006 WD Project Demolition Subcontractor Route provides information for the following:

1. Personnel parking area.

2. Site location.

3. Storage area.

4. Waste Transfer Area.

5. Site access portals and access routes.

1.9 WORKING AND STORAGE AREAS

A. Limit activities and storage to the immediate project construction site and designated work areas as shown on Drawing No. WD006. Limit travel to the main side roads as shown on Drawing No. WD006.

B. Store only work-related material and equipment in stockpile areas, storage trailers, and designated storage sites located in the subcontractor's compound or common waste zone.

C. Parking along roads is **PROHIBITED**.

D. Perform cleanups, trash disposal, and neatly arrange material and equipment on a daily basis.

1.10 PROJECT COORDINATION

A. The Buyer's Technical Representative will coordinate site outages and approve outage schedule. Subcontractor shall hold outages to a minimum in number and duration.

B. The Buyer will provide excavation permit forms as needed. Request task-specific Buyer-supplied permits (such as hotwork, etc.) 48 hours in advance of need or as specified in individual sections.

1.11 DELIVERY, STORAGE, AND HANDLING

A. Subcontractor shall; have all materials and equipment deliveries routed through Gate 8. An escort, provided by the Buyer, will be required for the driver of the transport vehicle until the vehicle leaves the site.

1. Comply with instructions, recommendations, and requirements stated by the manufacturer for handling and storing of material and equipment. Protect materials and equipment from moisture, dust, and damage.

2. Identify items delivered to the work site with a weather-resistant tag or label with Subcontractor name, contract number and contents.

3. Train employees in use of special handling or lifting equipment.

1.12 UNUSUAL CONDITIONS

A. Asbestos, lead, radiological contamination and hazardous chemical waste materials are expected hazards.

B. Buyer will monitor excavation and demolition activities that have a potential of containing unidentified contamination. Periodic surveys of the work area, equipment, and personnel will be performed.

C. As-Built drawings are provided for information only and may not be complete or accurate. The subcontractor shall locate existing underground utilities using electronic scanning methods and shall clearly mark and identify their locations.

D. Hand excavate within five feet of known or suspected "active" utilities. All exterior excavations shall have a person designated as a "spotter" at the excavation.

E. The following have been identified as safety concerns and are in close proximity to the work site: overhead electrical lines, underground utilities, and adjacent radiological contamination areas. All utilities shall be considered energized until verified by the subcontractor.

PART 2 PRODUCTS

2.1 PROPERTY AND SERVICES FURNISHED TO THE SUBCONTRACTOR

A. Waste storage containers for (radiological, PCB, RCRA, chemical, hazardous) waste. Subcontractor shall estimate the number and type of waste containers required at least 6 months prior to expected use.

B. Various Radiological, Safety & Health, Asbestos, Environmental, and Waste Management services as specified in the individual sections.

PART 3 EXECUTION

3.1 PREPARATION

A. Training

1. Ensure work specific training is provided prior to performing work activities. Document training files for current subcontractor employees shall be maintained on site.

2. The Buyer's Training Matrix may be used as a guide, but it is the Subcontractor's responsibility to determine actual training required based on the Contract Documents, Federal and State laws, and method of accomplishment.

3.2 WELDING

A. All welding on Permanent Plant Equipment shall conform to AWS D.1.1.

3.3 TESTING

A. The Subcontractor shall perform and document the following tests/inspections. Coordinate activities through the Buyer's Technical Representative. The Subcontractor shall perform the following tests and inspections in a manner that allows observation by the Buyer.

1. Leak testing of the WD/WDA HEPA-filtered equipment [Sect. 01150]

2. Sample Analysis [Sect. 01130]

3. Settings and trip test for electric breakers [Sect. 16000]

4. On-site welding/tests inspections.

5. Sample collections required by work plans.

B. Provide labor and technical support, annually calibrated (unless more frequent calibration is specified) and properly maintained equipment, and materials required to perform testing. Equipment calibration records shall be submitted upon request.

C. Notify the Buyer 24 hours (48 hours for fire or sprinkler systems) before performing tests and inspections.

D. Submit copies of actual test plans utilized and test results, as required, in accordance with Section 01300 Submittals and 01300 Attachment I Submittal Schedule.

END OF SECTION

SECTION 01940

BUILDING WD VENTILATION SYSTEM DISMANTLEMENT AND DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The removal of all exhaust and ventilation components that are physically located inside and outside of the building including:

1. Stack monitoring and sampling instrumentation and equipment.

2. Ventilation supply system, inclusive of the electrical power, heating coils, glycol lines, supply fans, filters, ducting, and system housing.

3. Ventilation exhaust system, inclusive of the electrical power, HEPA Filters, fire suppression lines, glycol line, exhaust ducting, exhaust fans, and system housing, the exhaust plenum with support platform.

4. The components covered under this section may be considered sources of potential radiological contamination and releasable inventory. Consult Section 01150 Work in Radiologically Contaminated Areas and Appendix A, Reconnaissance Level Characterization Report, for detailed information.

1.2 WORK PHASES

A. The complete Building WD exhaust and ventilation system decontamination and demolition are covered by two sections, this section and Section 01925 Secondary Ventilation Systems Demolition.

Section 01925 covers exhaust and ventilation components located inside the building and outside ducting, including but not limited to the WD Supply Housing, Exhaust HEPA filter bank, and its associated exhaust fan and exhaust stack. This work is to be performed during Phase I of the overall project work; therefore, WD's "environmental envelope" must be maintained to prevent release of any radiological contamination. Work covered under Section 01925 must be completed before work under this section can proceed.

This section covers the dismantlement and demolition activities associated with Supply and Exhaust ventilation system components and is to be performed during Phase II of the overall project work.

1.3 RELATED SECTIONS

A. Section 01010 Summary of Work

B. Section 01110 Safety and Health

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01460 Integrated Work Control

F. Section 01550 Waste Management

G. Section 01925 Secondary Ventilation Systems Demolition

H. Section 01935 Building WD Decontamination, Dismantlement, and Demolition

I. Section 01945 Below Grade Removals

J. Section 16000 Electrical

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

C. Appendix P Photographs, Building WD

D. Section 01940 Attachment I MD-50001 FM-PM-039, and -060

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926, Subpart T – Demolition - Sections 850-860

2. 40 CFR 61, Subpart M – National Emission Standard for Asbestos

3. 40 CFR 61, Subpart H – National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

4. 10 CFR 835, Occupational Radiation Protection.

B. National Fire Protection Association (NFPA):

1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures

2. NFPA 241-93 Standard for Safeguarding Construction, Alteration and Demolition activities.

C. DOE N441-1 Radiation Protection of the Public and the Environment

D. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

E. Ohio Administrative Code (OAC): 3745-20 Asbestos Emission Control

1.6 SUBMITTALS

A. Renovations involving asbestos and building demolitions (with or without asbestos) are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Federal regulatory authority has been delegated to the State of Ohio. For the Mound Plant, the requirements are administered by the Regional Air Pollution Control Agency (RAPCA) on behalf of the Ohio EPA (OEPA).

The Subcontractor shall submit notifications to RAPCA for the exhaust HEPA ventilation demolition phase. Notifications must be submitted to RAPCA two weeks before work is to begin, in accordance with Section 01190 Environmental Compliance. The Subcontractor shall not proceed with Phase II decontamination, dismantlement, and demolition activities covered in this section until RAPCA associated activities are completed.

B. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for WD Project demolition activities. Activities with the potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval. The present radionuclide inventory in the WD Facility alone, is estimated to be 0.3 Ci. This inventory would provide an EDE to the public (Building 87) of 0.5 mrem per year. The estimated radionuclide project inventory to achieve an EDE less than 0.1 mrem per year is 0.06 Ci. (For dose calculations: the distance to the nearest inhabited facility, Building 87, is 165 meters.)

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions

standards analysis for ventilation dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may have to perform decontamination to bring the levels below the approved standard.

Then, per the NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the U.S. EPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead time for work package approval process.

C. The Subcontractor shall submit for approval a Building WD Ventilation Decontamination, Dismantlement and Demolition Work Package, which contains, at a minimum, the items identified below. The Work Package shall be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with Phase II Building WD Ventilation decontamination, dismantlement, and demolition activities covered in this section until reviewed by the Buyer.

NOTE: Work Packages for Phase II activities will be reviewed by the Buyer, DOE, USEPA and OEPA. See Section 01300 Submittals and Section 01460 Integrated Work Control for specific details.

1. Detailed method and sequence of radiological decontamination of the inside face of the ventilation ducts, HEPA Filter, exhaust stack, and other areas, as applicable. (See Appendix A, Reconnaissance Level Characterization Report.)

2. Detailed method and sequence of performing radionuclide inventory activities for Buyer's NESHAPs analysis.

3. Detailed method and sequence for dismantlement and demolition, including equipment to be used, of all Building WD ventilation ducting, structural steel, air handling equipment, glycol lines, fire suppression lines, and electrical items covered under this section.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of WD to prevent potential radiological release.

5. A Waste Management Plan that covers the Building WD Ventilation Decontamination, Dismantlement and Demolition scope of work in this section in accordance with Section 01550 Waste Management.

6. An Asbestos Abatement Plan in accordance with Section 01130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Method for verifying that all previous steps of the demolition process have been performed including the isolation of utilities to the stack and its components.

9. Location of equipment decontamination area, personnel decontamination areas/change-rooms, debris staging areas and equipment/material laydown areas.

10. Method of protecting existing above-grade and below-grade services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Method of size/volume reduction in accordance with Section 01550 Waste Management.

14. Method for protecting lay down and cutting areas from radiological contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300 Submittals.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of work will potentially involve the following activities: Work Package submittal and approval process; possible decontamination activities; radionuclide inventory activities; NESHAPs submittal and approval process based on inventory numbers and dismantlement, demolition, and notification activities.

1. In addition, there are activities/submittals listed below that must take place prior to dismantlement and demolition for Phase II. These are **HOLD**

POINTS and must be adhered to.

B. Phase II Building WD Ventilation decontamination, dismantlement and demolition activities **shall not** begin until:

1. Buyer's review of the Decontamination, Dismantlement, and Demolition Phase II Work Package discussed in paragraph 1.6 C.

2. The NESHAPs analysis is completed and (if required) approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of all Utility Isolation and Removal activities that impact the ventilation and its system components as covered in Section 01900.

C. Post construction shall include decontamination of subcontractor's equipment and demobilization

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all proper equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the proper execution of the work.

C. Surfactants:

1. CP-225 CHIL-SORB by Childers.

2. Buyer approved equal.

D. Encapsulants/Sealants:

1. CP-240 CHIL-LOCK by Childers

2. Certane 2050 by Certified Technologies

3. Eppco #1 by Expert Environmental Products

4. Serpiloc by International Protection Coatings Corp.

5. Buyer approved equal.

E. Equipment Decontamination Area:

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The Buyer must approve the location for installation.

2. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. The Subcontractor shall ensure that adequate laydown space has been cleared and barriers have been established.

C. Personnel and equipment decontamination areas are set-up.

D. All site permits necessary to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

G. In general, items shall have radiological contamination fixed or removed prior to dismantlement and if applicable, prior to removing local containment, negative ventilation or building enclosures, in accordance with Section 01150 Work in Radiologically Contaminated Areas.

H. Cutting:

1. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production, such as mechanically dismantling duct flanges by removing the flange bolts and nuts.

2. The Subcontractor shall apply mechanical means of cutting and removing concrete/masonry, structural steel, and exhaust system components to the

largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

3. Debris generated during exhaust system dismantlement (i.e. ductwork, exhaust fan, plenum, and structural steel), shall be collected and managed in accordance with Section 01550 Waste Management.

4. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

5. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

6. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

7. Because of radiological contamination levels, some concrete may require local containment for cutting activities.

8. Use of explosives is prohibited.

3.2 SPECIAL INSTRUCTIONS

A. Sampling Equipment and Instrumentation

1. With reference to paragraph 1.2, Work Phases, when the Building WD Negative Pressure Environmental Envelope is permanently breached (i.e., after completion of work in Section 01925), the Buyer will remove the stack sampling instrumentation and equipment from the WD Penthouse room WD-200P. Any remaining items encountered during stack dismantlement and demolition are considered waste and should be disposed of according to Section 01550 Waste Management.

B. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Safety and Health and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The decontamination area shall be constructed to collect and containment all wastes, solid and/or liquids generated during decontamination process.

3. The decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

6. The decontamination station shall be available for the subcontractor to decontaminate their equipment prior to release form site.

7. Precautions shall be taken to prevent overspray from leaving the equipment decontamination station area. If directed by the contractor, engineering controls such as visqueen tarpaulins shall be hung vertically at the edge of the area to control overspray.

3.3 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.4 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 01945

BELOW GRADE REMOVALS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Descriptions of below grade structures to be removed. Brief descriptions of associated radiological contamination are also included. More complete descriptions of contamination conditions are found in the Characterization Report (Appendix A).

B. Below Grade Removals include the removal of utility piping and services below the floor slab associated with Buildings WD, 23, and ATS. (See Appendix B WD Project Drawings and Drawing No. WD002 WD Project Mechanical Utilities Isolation)

C. The WDA South Asphalt Area, shown in Drawing No. WD002, functions as a non-regulated site administrative control over radiologically contaminated soils. At all times during this project, this area shall be maintained in an intact configuration and protected from damage. Should disturbance of this area be required to allow for structure removal, a plan must be reviewed by the Buyer that describes how the work will be executed.

D. Building WD

1. The Building WD floor drain system includes piping that drains to the two sumps located in Room 1 and subbasement Room 01 or the storm drain system. See Drawings in Appendix B for specific details.

    a. There are general floor drains, equipment drains, drinking fountain drains, and clean-outs.

    b. The drain lines have bell and spigot joints with lead oakum.

    c. Mixed waste will be generated during the removal of these joints.

    d. The drain system runs perpendicular to the building footers and second floor support walls. Many of these drains have been plugged at the floor level during past D&D activities.

    e. With the exception of the drain openings being within the floor slab, most of the drain system is located below the floor slab within the

soil/gravel fill.

f. The drain lines and sumps are expected to have radiological contamination with the potential of being treated as TRU waste. Their removal shall be included in a Work Package covering these specific activities.

E. Building 23

1. The Building 23 floor drain system has been plugged at the floor level during past construction activities. See Appendix B WD Project Drawings for approximate details.

F. Building ATS

1. The Building ATS floor drain system has been sealed with concrete. See Appendix B WD Project Drawings for approximate details.

a. There are general floor drains, equipment drains, drinking fountain drains, and clean-outs.

b. With the exception of the drain openings being within the floor slab, most of the drain system is located below the floor slab within the soil/gravel fill.

1.2 WORK PHASES

A. The work under this section falls under Phase IV of the overall project work (see Section 01010 Summary of Work). Phase IV work includes decontamination, dismantlement, demolition, and disposal activities necessary to remove the WD/WDA pads, subsurface tanks, foundations, and associated contaminated soils.

1.3 RELATED SECTIONS

A. Section 01110 Safety and Health

B. Section 01150 Work in Radiologically Contaminated Areas

C. Section 01190 Environmental Compliance

D. Section 01550 Waste Management

E. Section 01935 Building WD Decontamination, Dismantlement, and Demolition

F. Section 01940 Building WD Ventilation System Decontamination and

Demolition

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

1. Drawing No. WD002 WD Project Mechanical Utilities Isolation

C. Appendix P Building WD Photographs

D. Appendix Q Building 23 Photographs

E. Appendix R Building ATS Photographs

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926 Construction

2. 29 CFR 1910 General Industry

B. Environmental Protection Agency

1. 40 CFR 61, Subpart M, National Emission Standard for Asbestos

2. 40 CFR 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

C. 10 CFR 835, Occupational Radiation Protection

D. DOE N441-1 Radiation Protection of the Public and the Environment

E. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

1.6 SUBMITTALS

A. An individual Work Package shall be submitted that includes all Below Grade Removals. The Work Package shall be in accordance with the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with Below Grade Removals covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer. The Work Package shall contain at a minimum the

following:

1. Detailed method and sequence of radiological decontamination, as applicable.

2. Detailed method and sequence of performing radionuclide inventory activities for the Buyer's NESHAPs analysis.

3. Detailed methods and sequence for pre-demolition dismantlement of WD footers, foundations, and slab and associated items covered under this section, including equipment to be used.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of WD to prevent potential radiological release.

5. A Waste Management Plan that covers the WD Facility Dismantlement and Demolition scope of work in this Section in accordance with Section 01550 Waste Management.

6. An Asbestos Abatement Plan in accordance with Section 01130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Method for verifying that the demolition process has been performed per work plan including the isolation of utilities to the building.

9. Location of equipment decontamination area, personnel decontamination areas/change-rooms, debris staging areas and equipment/material laydown areas.

10. Method of protecting existing above-grade and below-grade non-WD Facility services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Detailed methods and sequence of demolition activities including the equipment to be used.

14. Methods to be used for protecting lay down and demolition areas from additional contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300 ATT I Submittal Schedule.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of the work process will potentially involve the following activities (at a minimum): submittal and approval process for the Work Package; possible decontamination activities; radionuclide inventory activities; possible NESHAPs submittal and approval process based on inventory data, demolition activities.

B. Project breakdown by phases as described in paragraph 1.2 shall be followed. The Below Grade Removals will be accomplished under Phase IV.

C. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for Building WD demolition activities. Activities with the potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval. The present radionuclide inventory in the WD Facility alone, is estimated to be 0.3 Ci. This inventory would provide an EDE to the public (Building 87) of 0.5 mrem per year. (For dose calculations: the distance to the nearest inhabited facility, Building 87, is 165 meters.)

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions standards analysis for Building WD dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may have to perform area decontamination to bring the levels below the approved standard.

Then, per NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the USEPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead time for work package approval process.

D. Below Grade Removals shall not begin until:

1. Receipt of written Buyer approval of the Work Package that covers Below Grade Removals discussed in paragraph 1.6.

2. The NESHAPs analysis is completed and approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of all utility isolations and removals that impact Below Grade Removals as covered in Section 01900.

5. Post construction shall include decontamination of subcontractor's equipment and demobilization.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all proper equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the proper execution of the work.

C. Equipment Decontamination Area

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The location for installation must be approved by the Buyer.

2. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. The Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. The Subcontractor shall ensure that adequate laydown space has been cleared and barriers have been established.

C. Personnel and equipment decontamination areas are established.

D. All site permits necessary to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. The Subcontractor shall be responsible to ensure that the control measures are in place throughout the course of the project for slope protection and controls to reduce erosion, sedimentation, and water pollution through the use of erosion control devices in accordance with Section 01190 Environmental Compliance.

G. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

H. Items shall have contamination fixed or removed prior to dismantlement and if applicable in accordance with Section 01150 Work in Radiologically Contaminated Areas.

3.2 APPLICATION

A. The contractor shall prevent damage to adjacent structures, materials, and equipment including overhead and underground utilities during demolition activities. If concrete dust is generated as a result of demolition operations (due to crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production.

C. Subcontractor shall apply mechanical means of cutting and removing concrete/masonry and steel items to the largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

D. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

E. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

F. Because of radiological contamination levels, some concrete may require local containment for cutting activities.

G. Use of explosives is prohibited.

H. Execute demolitions work in an orderly, careful manner. Provide barricades, fences, lights, and other protection to protect adjacent access.

I. Obtain advance approval from Buyer for any work performed in roadways or walkways adjacent to site and for any detouring of traffic. Provide all safety measures and devices required by the Buyer and applicable regulatory agencies.

J. Remove and dispose of generated material resulting from demolition operations as soon as practical. Prevent spillage on streets or adjacent areas. Dispose of material in accordance with Section 01550 Waste Management. Burying debris is prohibited.

K. Existing utility lines shown on project drawing, Drawing No. WD002 WD Project Mechanical Utilities Isolation, should be considered to be approximate locations only. Field verify all existing utility lines prior to demolition or grading. Report deviations for the locations shown in writing to the Buyer prior to beginning demolition.

L. Coordinate disconnection of piping and utilities with Buyer's Technical Representative. Do not commence work until utility isolations are approved in writing.

M. Plug dead ends of disconnected gravity pipelines by plugging with concrete or standard pipe plugs. Cap or plug dead ends of disconnected pressure pipelines with standard pressure pipefittings, and anchor with concrete thrust blocks. Provide capped and plugged joints that are watertight.

N. Preserve active utilities traversing project site, including, but not limited to, mains, lines, duct banks, manholes, catch basins, valve boxes, poles, guys, and other appurtenances in operating condition. Repair damage to any active utility in accordance with the Buyer's instructions.

O. Where areas of concrete or asphalt are to be retained or repaired to maintain roads or control of fixed radiological areas, saw concrete along straight lines to a depth of not less than 2 in. Cuts shall be made perpendicular to face and in alignment with cut in opposite face. Break out remainder of asphalt or concrete, provided that broken area is concealed in finished work and that remaining is sound. Where broken face cannot be concealed, ground smooth or the saw-cut shall penetrate entirely through the material. The roads and fixed radiological control areas of concern are identified in Drawings No. WD001, and WD002.

P. Areas of "fixed" contamination on the slab shall be coated with 2 applications of paint of contrasting colors.

Q. Where portions of the slab have been removed, crushed concrete/stone will be used by the Subcontractor as backfill.

R. All dismantlement or demolition and debris or equipment removal will stop at existing ground or lowest exposed concrete surface unless specified otherwise.

S. All pipes or openings that remain at existing ground or lowest exposed concrete surface after equipment and pipe removal shall be sealed and sumps, pits, trenches or excavations covered.

T. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Safety and Health and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The decontamination area shall be constructed to collect and containment all wastes, solid and/or liquids generated during decontamination process.

3. The decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process. Engineering Controls shall be employed to prevent overspray.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

3.3 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.4 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as

applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 01950

BUILDING ATS STRUCTURE

DISMANTLEMENT AND DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All above-grade dismantlement and demolition of Building ATS concrete/masonry, structural steel, and roofing, including but not limited to:

1. Cast-in place concrete floors, foundations, and footers, no drawings exist, see Appendix R.

2. Steel components including but not limited to structural beams, roof and wall panels, influent and effluent waste transfer lines, handrails, holding and mixing tanks, stairs, canopies, platforms, large doors, and framed wall openings.

B. Building ATS Structure Description

1. Building ATS is a 2,000 square feet pre-engineered single story building used to treat low level alpha contaminated wastewater. The building consists of a steel frame covered by metal panels on a sealed and epoxy-painted concrete slab. The building contains two rooms that have noncombustible walls. The building is heated with electric space heater and cooled with a central air-handling unit located outside of the facility. The building contains a multimedia filter and bag filter, a clariflocculator unit, alpha influent and effluent tanks, a sump pit, a filter press, and a drum packaging area. (See Appendix B WD Project Drawings No. WD005, Building ATS Facility)

C. The items covered under this section are considered sources of potential radiological contamination and releasable inventory. Consult Section 01150 Work in Radiologically Contaminated Areas and Appendix A, Reconnaissance Level Characterization Report, for detailed information.

1.2 WORK PHASES

A. This section's work is considered Phase VI of the overall project work, see Section 01010 Summary of Work. Phase VI, demolition of Building ATS, shall not be scheduled for decontamination and demolition activities until after March

1, 2003. Phase VI work includes the decontamination, dismantlement, and demolition activities to be accomplished. The elements of this phase may consist of 1) decontamination of the building's wall, ceiling, and floors, 2) demolition of the building's structure, concrete pad, and footers, and 3) transfer of the waste to Buyer for disposal.

1.3 RELATED SECTIONS

A. Section 01010 Summary of Work

B. Section 01110 Safety and Health

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01460 Integrated Work Control

F. Section 01550 Waste Management

G. Section 01900 Utilities Isolation and Removal

H. Section 01925 Secondary Ventilation Systems Demolition

I. Section 01930 Building 23 Structure Dismantlement and Demolition

J. Section 01935 Building WD Decontamination, Dismantlement and Demolition

K. Section 01945 Below Grade Removals

L. Section 16000 Electrical

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

1. Drawing No. WD005 Building ATS Facility

C. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23 and 125 (ATS)

D. Appendix I MD-10506, Building ATS Auditable Safety Analysis

E. Appendix J MD-70779, Building ATS Operation and Maintenance Plan

F. Appendix K MLM-3845, Building ATS Fire Hazardous Analysis

G. Appendix O MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Materials, April 2002

H. Appendix R Photographs, Building ATS

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926, Subpart T – Demolition - Sections 850-860

2. 40 CFR 61, Subpart M, National Emission Standard for Asbestos

3. 40 CFR 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

4. 10 CFR 835, Occupational Radiation Protection.

B. National Fire Protection Association (NFPA):

1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures

2. NFPA 241-93 Standard for Safeguarding Construction, Alteration and Demolition activities.

C. DOE N441-1 Radiation Protection of the Public and the Environment

D. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

E. Ohio Administrative Code (OAC): 3745-20 Asbestos Emission Control

1.6 SUBMITTALS

A. Renovations involving asbestos and building demolitions (with or without asbestos) are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Federal regulatory authority has been delegated to the State of Ohio. For the Mound Plant, the requirements are administered by the Regional Air Pollution Control Agency (RAPCA) on behalf of the Ohio EPA (OEPA).

The Subcontractor shall submit notifications to RAPCA for this demolition project in accordance with Section 01190 Environmental Compliance. The Subcontractor shall not proceed with Building ATS decontamination, dismantlement, and demolition activities covered in this section until all associated RAPCA notifications are satisfied.

B. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for WD Project demolition activities. Activities with the potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval.

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions standards analysis for Building ATS dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may be required to perform additional area decontamination to bring the levels below the approved standard.

Then, per NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the USEPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead-time for work package approval process.

C. Engineering Survey in accordance with 29CFR 1926 Subpart T, Demolition. **A Profession Structural Engineer certification is required**.

D. The Subcontractor shall submit for approval Work Package(s) that covers Phase VI for Building ATS decontamination, dismantlement, and demolition, and at a minimum, contains the items identified below. The Work Package(s) shall be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with The Building ATS dismantlement and demolition covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

NOTE: Work Package(s) for Phase VI activities will be reviewed and approved by the Buyer and made available to the DOE, USEPA and the OEPA on request. See Section 01300 Submittals and Section 01460 Integrated Work Control for specific details on work package review periods.

The work packages shall contain:

1. Detailed method and sequence of radiological decontamination, as applicable.

2. Detailed method and sequence of performing radionuclide inventory activities for the Buyer's NESHAPs analysis.

3. Detailed method and sequence for pre-demolition dismantlement and demolition of the Building ATS and its components including removal of any piping, and PCB light ballasts.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of ATS to prevent potential radiological release.

5. A Waste Management Plan that covers the Building ATS Dismantlement and Demolition scope of work in this section in accordance with Section 01550 Waste Management.

6. An asbestos abatement plan in accordance with 1130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Verification that the demolition has been performed per work plan including the isolation of utilities to the building.

9. Location of equipment decontamination areas, personnel decontamination and/or shower areas, debris staging areas and equipment/material laydown areas.

10. Methods of protecting existing above-grade and below-grade non-Building ATS services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Detailed methods and sequences of demolition activities, including removal of any equipment to be used.

14. Methods to be used for protecting lay down and demolition areas from additional contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300 Submittals.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of work will potentially involve the following activities: Work Package submittal and approval process; possible decontamination and dismantling activities; radionuclide inventory activities; NESHAPs submittal and approval process based on inventory numbers and dismantlement, demolition and notification activities.

1. Project breakdown by activities as described in paragraph 1.2 shall be followed. The Building ATS dismantlement and demolition activities as covered in this section fall under Phase VI.

2. In addition, there are activities/submittals listed below that must take place prior to dismantlement and demolition. These are HOLD POINTS and must be adhered to.

B. Prior to demolition of the building, all tritium exit lights shall be removed, segregated and transferred to the Buyer.

C. Building ATS decontamination, dismantlement and demolition activities shall not begin until:

1. Receipt of written Buyer approval of the Decontamination, Dismantlement, and Demolition Work Package(s) discussed in paragraph 1.6C.

2. The NESHAPs analysis is completed and, if required, approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of utility isolation and removal activities that impact the

building and its systems as covered in Section 01900.

5. Post construction shall include decontamination of Subcontractor's equipment and demobilization.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the execution of the work.

C. Surfactants:

1. CP-225 CHIL-SORB by Childers.

2. Buyer approved equal.

D. Encapsulants/Sealants:

1. CP-240 CHIL-LOCK by Childers

2. Certane 2050 by Certified Technologies

3. Eppco #1 by Expert Environmental Products

4. Serpiloc by International Protection Coatings Corp.

5. Buyer approved equal.

E. Equipment Decontamination Areas:

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The Buyer must approve the location for installation.

2. Decontamination area shall be constructed to collect and contain all wastes, solid and/or liquids generated during decontamination process.

3. Decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. Subcontractor shall ensure that adequate laydown space has been cleared and barriers have been established.

C. Personnel and equipment decontamination areas are established.

D. All site permits to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. The Subcontractor shall be responsible to ensure that the control measures are in place throughout the course of the project for slope protection and controls to reduce erosion, sedimentation, and water pollution through the use of erosion control devices in accordance with Section 01190 Environmental Compliance.

G. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

H. Items shall have contamination fixed or removed prior to dismantlement and if applicable, prior to removing local containment, negative ventilation or building enclosures, in accordance with Section 01150 Work in Radiologically Contaminated Areas.

3.2 APPLICATION

A. The contractor shall prevent damage to any adjacent structures, materials, and equipment including overhead and underground utilities during demolition activities. Activities to fell concrete structures outside their footprint require prior approval. Activities to fell concrete structures shall maintain the integrity of porous surfaces to the extent practical to minimize dispersal of debris. If concrete dust is generated as a result of demolition operations (due to

crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. Demolition:

1. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production.

2. Subcontractor shall apply mechanical means of cutting and removing concrete/masonry and structural steel to the largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

3. All debris released during structural demolition, shall be collected and managed in accordance with Section 01550 Waste Management.

4. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

5. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

6. Because of contamination levels, some concrete may require local containment for demolition activities.

7. Use of explosives is prohibited.

3.3 SPECIAL INSTRUCTIONS

A. Doors

1. The Subcontractor shall remove all doors (wood and/or steel) and place them in appropriate containers (see Section 01550 Waste Management).

B. Lead Materials

1. The Subcontractor shall segregate all lead materials (e.g., flashing, vent stacks, pipe joint materials, tank liners, etc.) and place them in appropriate containers in accordance with Section 01550 Waste Management.

C. Wall and Roof Louvers

1. The Subcontractor shall remove louvers and roof vents during exterior concrete/masonry removal and place in appropriate containers (see Section 01550 Waste Management).

D. Roofing

1. All roofing materials shall be demolished with the concrete roof structure wherever possible. Asphalt-based roofing materials are assumed to contain asbestos and shall be handled in accordance with the EPA NESHAP regulation (40 CFR 61, subpart M) and OSHA (29 CFR 1926.1101).

E. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Safety and Health and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The subcontractor shall construct the decontamination area to decontaminate all of his equipment as needed. The decontamination station shall be constructed to contain all contaminated soil and liquids generated. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

3. The decontamination area shall be available for the subcontractor to decontaminate their equipment prior to release form site.

4. Precautions shall be taken to prevent overspray from leaving the equipment decontamination area. If directed by the contractor, engineering controls such as visqueen tarpaulins shall be hung vertically at the edge of the area to control overspray.

3.4 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.5 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as

applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 01950

BUILDING ATS STRUCTURE

DISMANTLEMENT AND DEMOLITION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. All above-grade dismantlement and demolition of Building ATS concrete/masonry, structural steel, and roofing, including but not limited to:

1. Cast-in place concrete floors, foundations, and footers, no drawings exist, see Appendix R.

2. Steel components including but not limited to structural beams, roof and wall panels, influent and effluent waste transfer lines, handrails, holding and mixing tanks, stairs, canopies, platforms, large doors, and framed wall openings.

B. Building ATS Structure Description

1. Building ATS is a 2,000 square feet pre-engineered single story building used to treat low level alpha contaminated wastewater. The building consists of a steel frame covered by metal panels on a sealed and epoxy-painted concrete slab. The building contains two rooms that have noncombustible walls. The building is heated with electric space heater and cooled with a central air-handling unit located outside of the facility. The building contains a multimedia filter and bag filter, a clariflocculator unit, alpha influent and effluent tanks, a sump pit, a filter press, and a drum packaging area. (See Appendix B WD Project Drawings No. WD005, Building ATS Facility)

C. The items covered under this section are considered sources of potential radiological contamination and releasable inventory. Consult Section 01150 Work in Radiologically Contaminated Areas and Appendix A, Reconnaissance Level Characterization Report, for detailed information.

1.2 WORK PHASES

A. This section's work is considered Phase VI of the overall project work, see Section 01010 Summary of Work. Phase VI, demolition of Building ATS, shall not be scheduled for decontamination and demolition activities until after March

1, 2003. Phase VI work includes the decontamination, dismantlement, and demolition activities to be accomplished. The elements of this phase may consist of 1) decontamination of the building's wall, ceiling, and floors, 2) demolition of the building's structure, concrete pad, and footers, and 3) transfer of the waste to Buyer for disposal.

1.3 RELATED SECTIONS

A. Section 01010 Summary of Work

B. Section 01110 Safety and Health

C. Section 01150 Work in Radiologically Contaminated Areas

D. Section 01190 Environmental Compliance

E. Section 01460 Integrated Work Control

F. Section 01550 Waste Management

G. Section 01900 Utilities Isolation and Removal

H. Section 01925 Secondary Ventilation Systems Demolition

I. Section 01930 Building 23 Structure Dismantlement and Demolition

J. Section 01935 Building WD Decontamination, Dismantlement and Demolition

K. Section 01945 Below Grade Removals

L. Section 16000 Electrical

1.4 REFERENCE MATERIALS

A. Appendix A Reconnaissance Level Characterization Report

B. Appendix B WD Project Drawings

1. Drawing No. WD005 Building ATS Facility

C. Appendix E Action Memorandum Engineering Evaluation/Cost Analysis Building WD, 23 and 125 (ATS)

D. Appendix I MD-10506, Building ATS Auditable Safety Analysis

E. Appendix J MD-70779, Building ATS Operation and Maintenance Plan

F. Appendix K MLM-3845, Building ATS Fire Hazardous Analysis

G. Appendix O MD-10497, Authorization Basis for On-Site Transportation and Handling of Radioactive and Hazardous Materials, April 2002

H. Appendix R Photographs, Building ATS

1.5 REFERENCES, CODES, AND STANDARDS

A. Occupational Safety & Health Administration (OSHA)

1. 29 CFR 1926, Subpart T – Demolition - Sections 850-860

2. 40 CFR 61, Subpart M, National Emission Standard for Asbestos

3. 40 CFR 61, Subpart H, National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

4. 10 CFR 835, Occupational Radiation Protection.

B. National Fire Protection Association (NFPA):

1. NFPA 101A-98 Code for Safety to Life from Fire in Buildings and Structures

2. NFPA 241-93 Standard for Safeguarding Construction, Alteration and Demolition activities.

C. DOE N441-1 Radiation Protection of the Public and the Environment

D. Ohio Administrative Code (OAC): 3745-17-08 Restriction of Emission of Fugitive Dust

E. Ohio Administrative Code (OAC): 3745-20 Asbestos Emission Control

1.6 SUBMITTALS

A. Renovations involving asbestos and building demolitions (with or without asbestos) are subject to National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations. Federal regulatory authority has been delegated to the State of Ohio. For the Mound Plant, the requirements are administered by the Regional Air Pollution Control Agency (RAPCA) on behalf of the Ohio EPA (OEPA).

The Subcontractor shall submit notifications to RAPCA for this demolition project in accordance with Section 01190 Environmental Compliance. The Subcontractor shall not proceed with Building ATS decontamination, dismantlement, and demolition activities covered in this section until all associated RAPCA notifications are satisfied.

B. Radionuclide emissions from DOE facilities to the atmosphere are subject to regulation by the U. S. EPA. The impact from DOE air emissions to any member of the public cannot exceed 10 mrem/year. Based on contractual agreements and other remediation work onsite, the Subcontractor cannot exceed 1.0 mrem/year for WD Project demolition activities. Activities with the potential to result in an effective dose equivalent (EDE) > 0.1 mrem/year to a member of the public require U.S. EPA approval.

The Subcontractor shall calculate and provide to the Buyer, a radionuclide inventory for all equipment and structure demolitions associated with this section. With this information, the Buyer will perform a NESHAPs emissions standards analysis for Building ATS dismantlement and demolition activities. Should this analysis exceed the NESHAPs emissions standard for release to the public, the subcontractor may be required to perform additional area decontamination to bring the levels below the approved standard.

Then, per NESHAPs (40 CFR 61 Subpart H), the Buyer shall submit a request for approval of the Subcontractor's work package from the USEPA to proceed with the project based on the results of the above NESHAPs analysis. USEPA approval would be part of the 6-month lead-time for work package approval process.

C. Engineering Survey in accordance with 29CFR 1926 Subpart T, Demolition. **A Professional Structural Engineer certification is required**.

D. The Subcontractor shall submit for approval Work Package(s) that covers Phase VI for Building ATS decontamination, dismantlement, and demolition, and at a minimum, contains the items identified below. The Work Package(s) shall be in accordance with the general requirements of the subcontract specifications including Sections 01300 Submittals and 01460 Integrated Work Control. The Subcontractor shall not proceed with The Building ATS dismantlement and demolition covered in this section until written approval is received regarding this **HOLD POINT** from the Buyer.

NOTE: Work Package(s) for Phase VI activities will be reviewed and approved by the Buyer and made available to the DOE, USEPA and the OEPA on request. See Section 01300 Submittals and Section 01460 Integrated Work Control for specific details on work package review periods.

The work packages shall contain:

1. Detailed method and sequence of radiological decontamination, as applicable.

2. Detailed method and sequence of performing radionuclide inventory activities for the Buyer's NESHAPs analysis.

3. Detailed method and sequence for pre-demolition dismantlement and demolition of the Building ATS and its components including removal of any piping, and PCB light ballasts.

4. Detailed means and methods used to maintain the integrity of the "environmental envelope" of ATS to prevent potential radiological release.

5. A Waste Management Plan that covers the Building ATS Dismantlement and Demolition scope of work in this section in accordance with Section 01550 Waste Management.

6. An asbestos abatement plan in accordance with 1130 Asbestos.

7. Verification of meeting all Environmental Compliance Department specific plan submittal requirements in accordance with Section 01190 Environmental Compliance. Examples include methods for dust control and control of contaminants; control of fugitive emissions; spill prevention and control; and storm water and erosion control.

8. Verification that the demolition has been performed per work plan including the isolation of utilities to the building.

9. Location of equipment decontamination areas, personnel decontamination and/or shower areas, debris staging areas and equipment/material laydown areas.

10. Methods of protecting existing above-grade and below-grade non-Building ATS services and utilities.

11. Methods for dust control and control of contaminants, including control of fugitive emissions in accordance with Section 01190 Environmental Compliance.

12. Materials, such as surfactants, to be used.

13. Detailed methods and sequences of demolition activities, including removal of any equipment to be used.

14. Methods to be used for protecting lay down and demolition areas from additional contamination by controlling airborne radiological emissions.

15. Methods to be used for decontamination of Subcontractors Equipment.

16. Submittals shall be submitted in accordance with Section 01400 Quality Assurance and Section 01300 Submittals.

1.7 SEQUENCING OF WORK

A. When preparing work packages for this section (as discussed in Paragraph 1.6), consideration should be given to the associated work phase. The general sequence of work will potentially involve the following activities: Work Package submittal and approval process; possible decontamination and dismantling activities; radionuclide inventory activities; NESHAPs submittal and approval process based on inventory numbers and dismantlement, demolition and notification activities.

1. Project breakdown by activities as described in paragraph 1.2 shall be followed. The Building ATS dismantlement and demolition activities as covered in this section fall under Phase VI.

2. In addition, there are activities/submittals listed below that must take place prior to dismantlement and demolition. These are HOLD POINTS and must be adhered to.

B. Prior to demolition of the building, all tritium exit lights shall be removed, segregated and transferred to the Buyer.

C. Building ATS decontamination, dismantlement and demolition activities shall not begin until:

1. Receipt of written Buyer approval of the Decontamination, Dismantlement, and Demolition Work Package(s) discussed in paragraph 1.6C.

2. The NESHAPs analysis is completed and, if required, approval is received from the U.S. EPA. See Section 01190 Environmental Compliance for further details regarding this subject.

3. RAPCA notifications and associated activities are completed.

4. Completion of utility isolation and removal activities that impact the

building and its systems as covered in Section 01900.

5. Post construction shall include decontamination of Subcontractor's equipment and demobilization.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. The Subcontractor shall supply all equipment necessary for the timely execution of the work in requisite numbers, sizes and capacity.

B. The Subcontractor shall provide all incidentals and accessories as required for the execution of the work.

C. Surfactants:

1. CP-225 CHIL-SORB by Childers.

2. Buyer approved equal.

D. Encapsulants/Sealants:

1. CP-240 CHIL-LOCK by Childers

2. Certane 2050 by Certified Technologies

3. Eppco #1 by Expert Environmental Products

4. Serpiloc by International Protection Coatings Corp.

5. Buyer approved equal.

E. Equipment Decontamination Areas:

1. Subcontractor shall provide a decontamination area to allow decontamination of their equipment. The Buyer must approve the location for installation.

2. Decontamination area shall be constructed to collect and contain all wastes, solid and/or liquids generated during decontamination process.

3. Decontamination area shall be constructed to contain any potential spray of liquids generated during decontamination process.

4. Subcontractor shall collect, drum, solidify, and segregate all generated waste for disposal by Buyer.

5. The decontamination area shall meet or be equivalent to the basic construction and material specifications used for a portable spill containment unit manufactured by PACTEC, Inc. The construction and materials are referenced at www.pactecinc.com.

PART 3 EXECUTION

3.1 PREPARATION

A. Subcontractor shall establish access controls to the project area using appropriate signs and barriers.

B. Subcontractor shall ensure that adequate laydown space has been cleared and barriers have been established.

C. Personnel and equipment decontamination areas are established.

D. All site permits to perform work activities are in place.

E. All personnel are trained, medically qualified, and their supporting documentation is onsite.

F. The Subcontractor shall be responsible to ensure that the control measures are in place throughout the course of the project for slope protection and controls to reduce erosion, sedimentation, and water pollution through the use of erosion control devices in accordance with Section 01190 Environmental Compliance.

G. In accordance with Section 01190 Environmental Compliance, the Subcontractor shall take precautions to control fugitive emissions.

H. Items shall have contamination fixed or removed prior to dismantlement and if applicable, prior to removing local containment, negative ventilation or building enclosures, in accordance with Section 01150 Work in Radiologically Contaminated Areas.

3.2 APPLICATION

A. The contractor shall prevent damage to any adjacent structures, materials, and equipment including overhead and underground utilities during demolition activities. Activities to fell concrete structures outside their footprint require prior approval. Activities to fell concrete structures shall maintain the integrity of porous surfaces to the extent practical to minimize dispersal of debris. If concrete dust is generated as a result of demolition operations (due to

crumbling, etc.), dust suppression techniques must be employed during demolition and, if necessary, during transportation.

B. Demolition:

1. The Subcontractor shall utilize all methods available to perform activities with a minimum of dust production.

2. Subcontractor shall apply mechanical means of cutting and removing concrete/masonry and structural steel to the largest extent possible while avoiding damage to adjacent structures, components, equipment, and utilities.

3. All debris released during structural demolition, shall be collected and managed in accordance with Section 01550 Waste Management.

4. All material shall be reduced in size as required for containerization or transfer as bulk waste in accordance with Section 01550 Waste Management.

5. Embedded steel reinforcing is considered part of concrete. Reinforcing bar/mesh shall be cut to less than 1 ft. from concrete mass.

6. Because of contamination levels, some concrete may require local containment for demolition activities.

7. Use of explosives is prohibited.

3.3 SPECIAL INSTRUCTIONS

A. Doors

1. The Subcontractor shall remove all doors (wood and/or steel) and place them in appropriate containers (see Section 01550 Waste Management).

B. Lead Materials

1. The Subcontractor shall segregate all lead materials (e.g., flashing, vent stacks, pipe joint materials, tank liners, etc.) and place them in appropriate containers in accordance with Section 01550 Waste Management.

C. Wall and Roof Louvers

1. The Subcontractor shall remove louvers and roof vents during exterior concrete/masonry removal and place in appropriate containers (see Section 01550 Waste Management).

D. Roofing

1. All roofing materials shall be demolished with the concrete roof structure wherever possible. Asphalt-based roofing materials are assumed to contain asbestos and shall be handled in accordance with the EPA NESHAP regulation (40 CFR 61, subpart M) and OSHA (29 CFR 1926.1101).

E. Equipment Decontamination

1. Subcontractor shall follow Section 01110 Safety and Health and Section 01150 Work in Radiologically Contaminated Areas for decontamination procedures for personnel and equipment.

2. The subcontractor shall construct the decontamination area to decontaminate all of his equipment as needed. The decontamination station shall be constructed to contain all contaminated soil and liquids generated. Solids/sediment shall be collected, segregated, and transferred with other contaminated waste to the Buyer for disposal. Contaminated liquids shall be collected, drummed, segregated, solidified, and transferred to the Buyer for disposal.

3. The decontamination area shall be available for the subcontractor to decontaminate their equipment prior to release form site.

4. Precautions shall be taken to prevent overspray from leaving the equipment decontamination area. If directed by the contractor, engineering controls such as visqueen tarpaulins shall be hung vertically at the edge of the area to control overspray.

3.4 QUALITY ASSURANCE

A. The Subcontractor shall inspect debris generation, stockpiling and containerization to ensure that all materials have been cut to meet size criteria and are being managed in accordance with Section 01550 Waste Management.

3.5 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as

applicable) and as otherwise noted on drawings and specifications.

END OF SECTION

SECTION 16000

ELECTRICAL

PART 1 GENERAL

1.1 SECTION INCLUDES

A. The following subcontractor requirements: Subcontractor to furnish all supervision, labor, materials, tools, and equipment, required to perform all electrical work, as specified in this section or as required to successfully carry out the work.

B. Contract Drawings and Specifications

1. The provided Contract Drawings are an outline to indicate the approximate location and arrangement of conduit, wiring and equipment. Do not scale Contract Drawings, but check measurements at site and adjust work to fit space allotted. The provided WD Project Drawings and specifications are intended to depict the general intent of the work in scope, layout, and quality of workmanship and are not intended to show or describe in minute detail all trades and accessories necessary for the proper and complete execution of the work.

C. The work for Buildings WD/WDA, 23, and ATS shall include installing or providing the following:

1. Temporary power distribution system installation in each facility.

2. Temporary lighting systems installation (interior and exterior) in each facility.

3. Temporary Alarm System in each facility.

4. Connection of identified mechanical equipment.

5. Tie-ins to Buyer supplied Mound utilities, i.e. 480 V, 100 A, 3-Phase at WD and Building 23 and the 480 V, 400 A, 3-Phase lighting panel at ATS.

6. Testing and Verification of building de-energization and temporary distribution system, in accordance with subcontractor's LO/TO procedures and Section 01110 Safety and Health.

1.2 TEMPORARY ELECTRICAL UTILITIES

A. WD Facility's temporary electrical power to identified critical equipment shall be installed with special markings.

1. A temporary 480 V, 100 A, 3-Phase Disconnect Switch, located outside on the north side of WDA, is available for the Subcontractor's temporary electrical distribution system. See Drawing No. WD002 WD Project Mechanical Utilities Isolation; Drawing No. FSD910551, E Substation, Sheet 12; Drawing No. FSD910551, HH Substation, Sheet 16; Drawing No. FSD871697, Emergency Generator #1, Sheet 8 for WD Facility disconnect locations.

1. Building WD/WDA critical equipment include: the WDA stack exhaust fan, the stack environment monitoring equipment, WD sump equipment located in Sump 20 and WDA-1 and 01 sumps.

2. All temporary wiring must meet or exceed NEC 2002 Article 527.

B. Building 23's temporary electrical power to equipment identified critical shall be installed with special markings.

1. When appropriate, Lock out/Tag out breaker E-B4 in E-Substation, drawing FSD910551 sheet 12, and remove all wiring and conduit from power panel, PP-1, in Building ATS. PP-1 in ATS will be the source for the subcontractor's temporary 480-volt, 3-phase service to be used for the building temporary electrical distribution system.

C. Building ATS's temporary electrical power to equipment identified critical shall be installed with special markings.

1. A temporary 480 V, 60 A, 3-Phase Disconnect, located outside on the east side of building 23, is available for the Subcontractor's temporary electrical distribution system.

D. A portable electrical distribution system, which has GFCI breakers, shall be used for hand tools, small space heaters, RAD monitoring equipment, temporary lighting within the building interior and circuits for the existing 120 volt emergency lights (e.g. Spider System) for each facility.

E. All temporary wiring must meet or exceed NEC 2002 Article 527 - Temporary Wiring.

F. All temporary wiring within the buildings must have special markings or color to allow for ease of identification.

1.3 MAJOR ELECTRICAL ACTIVITIES AT BUILDING WD

A. Separate Building WD/WDA electrical power from the Mound electrical primary systems (HH, E Substations, and Emergency Generator #1), per Section 01900 Utility Isolation and Removal.

1. Prepare the WD/WDA Facility for Buyer supplied temporary 480 V, 100 A, 3-Phase feeder and disconnect, and connect temporary electrical equipment to Buyer supplied 480 V, 3-phase Disconnect.

2. There are two existing BWXTO feeders providing power to the WD Facility, which need to be removed.

   a. One is a 480 V, 3-Phase 500 Kcim feeder sourced by the HH Substation, see Drawing No. FSD910551, HH Substation, Sheet 16. This feeder will need to be de-energized, disconnected from HH Substation, and an air gap cut in the feeder at manhole (MH # 9). MH # 9 is located at the southeast area of the WD Facility across the road.

      NOTE: PPE per Subcontractor's Safety and Health Plan shall meet the requirements of NFPA 70E.

   b. The second WD Facility feeder is sourced from an emergency powered power panel, powered from Substation E with backup power from Emergency Generator # 1, located in the West Stack Fan House located on the plant main hill, see Drawing No. FSD910551, E Substation, Sheet 12 and Drawing No. FSD871697, Emergency Generator #1, Sheet 8. The emergency powered power panel will have to be de-energized, the conductors removed from WD EF-1 Ventilation panel breaker (CB #3), and an air gap cut in the feeder at or near the WD Facility.

      NOTE: PPE per Subcontractor's Safety and Health Plan shall meet the requirements of NFPA 70E.

3. Connect the WD supply fan, with a new motor starter, directly to the temporary power disconnect.

4. Connect stack exhaust fan, with a new motor starter, directly to the temporary power disconnect.

5. Connect Sump 20 pump, with a new motor starter, directly to a temporary power distribution panel.

6. Connect WD-1 sump pumps, with a new motor starter, directly to a temporary power distribution panel.

7. Connect WD-01 sump pump directly to a temporary power distribution panel.

B. Buyer will disable the Building WD automatic transfer switches connected to Generator #1 upon request.

C. Maintain the 120-volt source to the stack environmental monitoring equipment currently located WDA-200P.

D. Install a temporary distribution system in Building WD.

E. Install Building WD stack alarms to single flashing light.

1. The listed Building WD (PP Bldg.) alarm contact points will be wired to a single flashing beacon light to be located on the outside wall of PP-70 located at the northwest corner of Building WD. Any one of the alarm points must be wired to activate the flashing light, which will stay lit until it is manually reset. The light will be bright blue in color.

2. Alarms

a. The WD stack alarm that currently is connected to the auto-dialer (Stack Monitoring Shack).

b. Temporary power must be maintained to the Fire Alarm System's Data Gather Panel (DGP) which is monitored by the Mound Fire Department. The DGP can be disconnected when written authorization is received from Mound Fire Department.

c. Final disconnection shall be coordinated with Buyer.

3. Upon completion of the work, the current signal lines to the auto-dialer will be disconnected.

F. Provide a temporary electrical distribution system throughout the building for such loads as temporary lighting, hand tools, small space heaters, existing 120 volt emergency lighting, etc. (e.g. Spider System). Emergency lighting is a safety system that must remain in service while the building is occupied per the Fire Hazard Analysis.

G. Test and verify that Building WD is de-energized, except for the above temporary distribution system.

1.4 Major Electrical Activities at Building 23 and ATS

A. Separation of Building 23 interior electrical power from the Disconnect Switch

located outside of Building 23.

1. Prepare Building 23 for Buyer supplied temporary 480-volt feeder and disconnect.

2. Tie in temporary 480/240/120 volt distribution panels to Building 23 Disconnect Switch.

   NOTE: PPE per Subcontractor's Safety and Health Plan shall meet the requirements of per NFPA 70E.

3. Connect the Building 23 exhaust fan, with a new motor starter, directly to the temporary power distribution panel.

4. Connect the Building 23 temporary Heat fans directly to a temporary power distribution panel.

5. Connect the Building 23 temporary lighting directly to a temporary power distribution panel.

B. Maintain the 120-volt source to the Building 23 environmental monitoring equipment.

C. Install Building 23 alarms to single flashing light.

1. The listed Building 23 alarm contact points shall be wired to a single flashing beacon light to be located on the outside wall of Building 23 located at the northwest corner of the building. Any one of the alarm points must be wired to activate the flashing light, which will stay lit until it is manually reset. The light will be bright blue in color. Individual alarm lights, within the area of the reset button shall indicate which alarm is signaling.

2. Alarms

   a. The Building 23 fire alarm is currently connected to the auto-dialer.

   b. Building 23 fire alarm equipment is monitored through the Fire Alarm System's Data Gather Panel (DGP) in Building 125. The cable feeding this signal must remain intact until written authorization is received from the Mound Fire Department. This cable is located on the outside of Building 23.

   c. Final disconnection shall be coordinated with the Buyer.

3. Upon completion of the work, the current signal lines to the auto-dialer

will be disconnected.

D. Preparation of Building ATS temporary source.

1. Prepare Building ATS for temporary 480-volt source. When appropriate, LO/TO breaker E-B4 in E-Substation and remove all wiring and conduit from PP-1 in ATS.

2. Prepare PP-1 to supply Building 23 as temporary power distribution system.

3. NOTE: PPE shall meet the requirements of per NFPA 70E.

4. Connect the Building ATS exhaust fan, with a new motor starter, directly to the temporary power distribution panel, PP-1.

5. Connect the Building ATS temporary Heat fans directly to a temporary power distribution panel, PP-1.

E. Provide a temporary electrical distribution system throughout the buildings for such loads as temporary lighting, hand tools, small space heaters, existing 120 volt emergency lighting, etc. (e.g. Spider System). Emergency lighting is a safety system that must remain in service while the building is occupied per the Fire Hazard Analysis.

F. Test and verify that Buildings are de-energized, except for the above temporary distribution system.

1.5 RELATED SECTIONS

A. Section 01110 Safety and Health

B. Section 01150 Work in Radiologically Contaminated Areas

C. Section 01300 Submittals

D. Section 01460 Integrated Work Control

E. Section 01500 Facilities, Controls, and Project Boundaries

F. Section 01900 Utility Isolation and Removal

G. Section 01915 Electrical Equipment Removal

1.6 REFERENCES

A. NFPA 70HB20 (NEC 2002)- National Fire Protection Association.

B. NFPA 70E – Standard Electrical Safety Requirements 2000 Edition

C. IEEE - Institute of Electrical and Electronic Engineers

D. OSHA - Occupational Safety and Health Administration

E. Appendix B WD Project Drawings

2. Drawing No. WD002 WD, Project Mechanical Utilities Isolation

3. Drawing No. FSD910551, E Substation, Sheet 12

4. Drawing No. FSD910551, HH Substation, Sheet 16

5. Drawing No. FSD871697, Emergency Generator #1, Sheet 8

1.7 SUBMITTALS

A. In accordance with Section 01300 Submittals, shop drawings, catalog data, equipment and material lists, elementary diagrams, wiring diagrams, installation instructions, maintenance manuals and instructions, and operation brochures, shall be submitted for equipment and materials in accordance with the code. If materials or equipment are required and are not specifically listed herein, the most closely related item listed will govern the type of submittal required.

B. Submit a detailed work package that covers “Buildings WD, 23, and ATS Electrical Isolation” for approval by Buyer, in accordance with Section 01460 Integrated Work Control.

C. Submit documentation that Buildings WD, 23, and ATS are de-energized except for new temporary power systems.

D. Submit copies of test reports to Buyer as performed.

E. Outage, permit, and/or Buyer support service requests shall utilize the Construction Daily Report as described in Section 01010.

F. Electrical work shall be performed by qualified personnel of a firm regularly engaged in such installation for at least five years. Submit for information evidence of qualifications.

1.8 QUALITY ASSURANCE

A. Regulatory Requirements –The latest published edition of the following shall

apply:

1. All electrical work shall be in accordance with the requirements of the National Electrical Code (NEC) except where specifically otherwise noted on the drawings and in the specifications.

2. All overhead line work shall be in accordance with the requirements of the National Electric Safety Code (NESC) except where specifically otherwise noted on the drawings in the specifications.

B. Workmanship:

1. Outlet boxes shall be left with cover or device plates installed with all mounting screws. Non-used knockouts are to have approved closures.

C. Inspection

1. All work shall be subject to inspection and review by the Buyer and shall not be concealed until such inspection has been made.

D. Test and Reports

1. Test all work incidental to this contract and demonstrate to the Buyer all requirements have been met.

2. Defective materials, equipment or connections shall be repaired or replaced and retested until satisfactory results are obtained.

3. Test all wiring and junctions for continuity and grounds before equipment is connected.

4. Notify the Buyer 24 hours prior to any test. Tests not witnessed by the Buyer shall be substantiated in written report.

5. Verify proper rotation of three phase motors, reconnecting as required.

1.9 DELIVERY, STORAGE AND HANDLING

A. Storage and Handling - Store all materials on site in enclosures or under protective covering to keep them clean and dry. Do not store materials directly on the ground. Care shall be taken in handling so as not to damage materials. The use of damaged materials will not be permitted.

2.0 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. All electrical materials provided by the Subcontractor shall be new.

B. All electrical equipment and materials furnished and installed shall bear the Underwriters' Laboratories Label of Approval for the particular service fitted. Exceptions shall be submitted for approval.

C. Manufacturers' Directions: All manufactured articles, material and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned, as directed by the manufacturer unless specified to the contrary.

D. Provide any offsets, fittings, etc., as a part of this contract. All equipment and installation materials obviously intended to complete any system shall be furnished whether or not enumerated herein.

E. Keys: Properly tag all keys and other devices necessary to gain access to panelboards, control panels, and equipment enclosures. Furnish a minimum of two (2) keys to the Buyer's Technical Representative for each item.

3.0 EXECUTION

3.1 EXAMINATION

A. The Subcontractor shall verify all existing conditions against the Contract Drawings and specifications. Discrepancies shall be brought to the Buyer's Technical Representative's attention, as soon as possible.

3.2 PREPARATION

A. Protection

1. Make delivery of material and equipment to construction site only after prior arrangement for storage and protection have been made.

2. All motorized equipment, switches, controllers, control cabinets, light fixtures and rotating equipment shall be covered securely to exclude dust and moisture. All stored conduit shall be placed on pallets and protected from weather and from entry of foreign material.

3. Protect factory finishes on equipment. Secure necessary covers and padding to provide maximum protection against all weather elements, plastering, painting and other types of damage.

B. The Subcontractor shall be responsible for coordinating the work with Buyer's Technical Representative to minimize interference. Subcontractor shall coordinate the locations and mounting characteristics of all electrical equipment

and materials, with the Buyer's Technical Representative for the work to be performed.

3.3 DEMOLITION

A. All wires, cables and conduits to be demolished shall be removed back to the source of power for the circuit involved. Under no circumstances shall unused conductors be left in an exposed, unprotected condition. Conduit to be reused may remain in place but all wires and cables to be demolished shall be removed back to source.

3.4 INSTALLATION

A. If deviations from drawings are necessitated by field conditions, proposed departures shall be referred to the Buyer for written approval prior to proceeding with the work.

B. Subcontractor is responsible to verify all measurements. Refer to architectural, structural, special equipment, and mechanical drawings, specifications, and prints for details, dimensions and location of other work.

C. Subcontractor shall ensure installation/demolition activities are in compliance with ordinances and statutes.

D. The Subcontractor shall check all building openings for admitting equipment and shall arrange with the Buyer, the proper locations of all chases, sleeves, boxes, and inserts required for the admission of and the supporting of all conduit, temporary wiring, and equipment entering into this work.

1. All conduits, temporary wiring, and equipment shall be adequately supported either suspended from the construction above or by means of struts to the construction below. Suspension from metal decking will not be permitted.

2. The Subcontractor shall be responsible for the provision of supplementary angles, channels, plates, rods, etc., where supports are required between building structural members, spanning the space and attached to building structural members by welding, bolting or with concrete anchors which are required for suspension or support of conduit and equipment.

3. To the extent possible, equipment and material installed under this work shall be supported from the building structure, independent of other pipe, duct, equipment, etc.

E. Install electrical items in a manner to clear overhead doors, ductwork, piping, and other miscellaneous equipment.

3.5 LINES AND GRADES:

A. No cutting shall be done which will reduce the structural strength of the building. Keep cutting to a minimum.

3.6 FIELD QUALITY CONTROL

A. Cleaning

1. Leave area in a clean and safe condition. All debris must be removed.

3.7 FINAL INSPECTION AND ACCEPTANCE

A. Subcontractor shall perform a final inspection with the Buyer's Technical Representative to ensure that the completed work satisfies all contractual requirements. A written punchlist will be made of those items or conditions not approved. Upon completion of a satisfactory inspection, the work will be accepted.

B. Upon completion and acceptance of the work, the Subcontractor shall promptly remove all equipment, excess materials, and supplies from the work area (as applicable) and as otherwise noted on drawings and specifications.

END OF SECTION